AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

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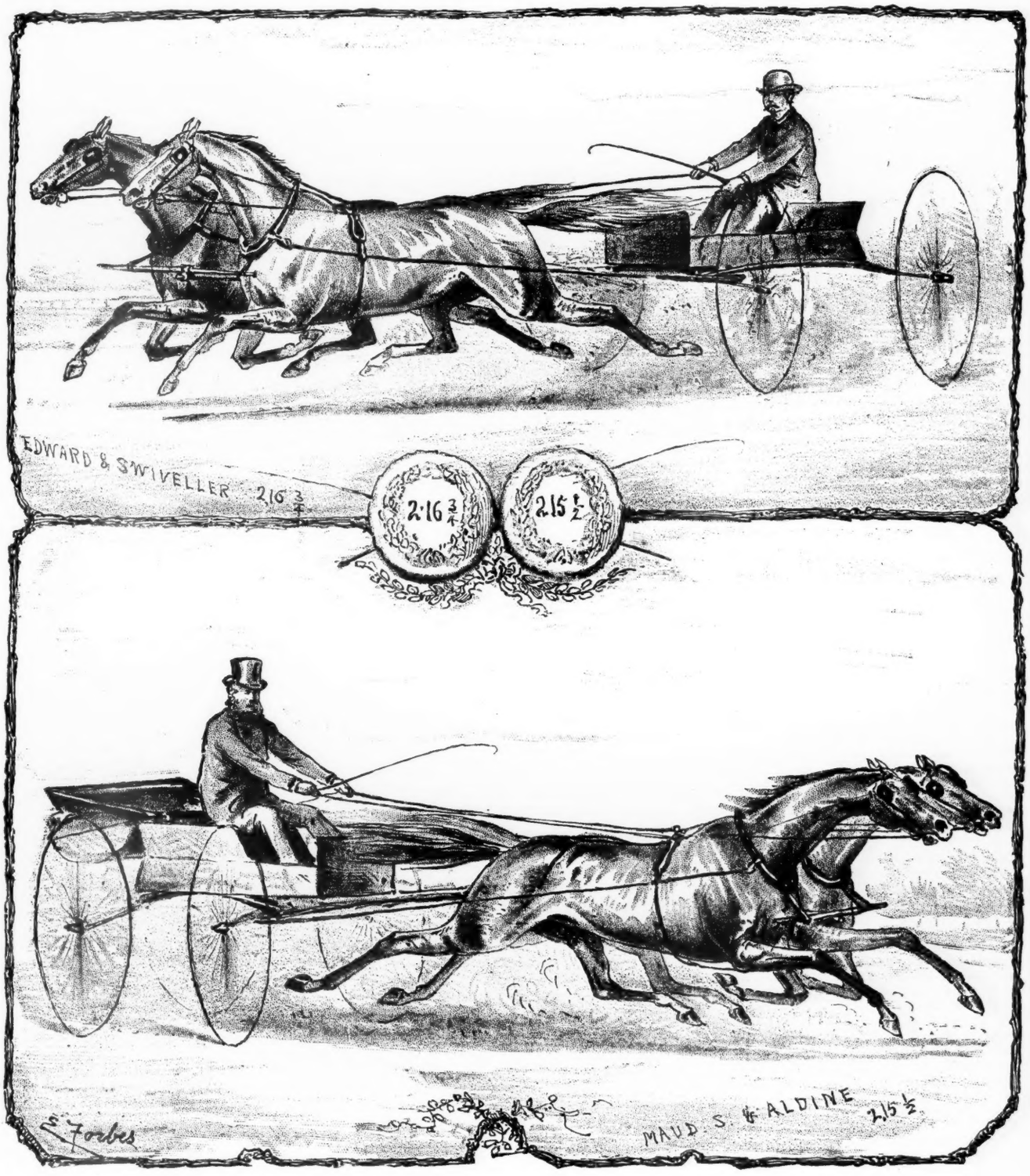

THE RIVAL SPANS.—(*See page 355.*)

Drawn and Engraved for the American Agriculturist.

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For interesting and valuable Editorial Correspondence from the Far West; comments on the great excitement in the Grain, Lard, and other Markets; the exposure of Sundry Humbugs, and various important short items, see the last pages of the paper.

The soil for winter wheat needs to be prepared at once. A clover sod may be treated to a dressing of well-rotted manure, before plowing it under. Much depends upon the variety of seed wheat, therefore sow only the best. If there is danger of the Hessian fly, it may be well to defer seeding until next month....For fall fodder white turnips may be sown now. Oat or barley stubble, when the soil is rich, can be turned under and produce six hundred bushels or more of late turnips per acre....Now is an excellent time to reclaim waste land. Brush cut this month will rarely sprout again, and drains may be opened, where it would be impossible to get teams on the land at any other season. It is best to clear thoroughly, and sow to grass, even if it be only a small portion of the waste land, and thus avoid the discouragement of half reclaiming a larger area....Lime is an old-time fertilizer, and rarely fails to give good returns on grass land abounding in vegetable matter. Forty bushels per acre may be spread from the wagon. ... Muck for use in the stables can be dug now. Draw the muck, with a scraper or otherwise, from the bed to some dry place near by, where it can dry out, after which it may be taken to the stable or store-room. Muck increases in value by "weathering," and it is well to have a year's supply constantly on hand....Fall plowing for spring sowing has the benefit of fallow to some extent, and the earlier it is done, the better. It improves heavy clay land more than a light sandy one.... In a time of drouth, look for and locate all springs or any indications that may lead to a supply of water. It is sometimes necessary to deepen wells which fail to furnish sufficient water....Weeds should not be allowed to go to seed. It is not enough to pull them up, as the seeds already formed will ripen and propagate the pests. The only safe method is to burn the weeds; throwing them on the manure heap only increases a good seeding.

Live Stock in Mid-summer.

This is a trying time for all kinds of farm animals; pastures are usually short, old grain is high, and the new not in the best condition for feeding. It is well to make the most of wooded pastures, where the animals can enjoy the shade during the hot days, and get a part of their living from the underbrush. A good supply of fodder corn helps to keep the cows up to their full flow of milk, and the other live stock in good health and flesh.... Horses are often extremely annoyed by flies, especially when in a shadeless pasture. It is best to let them stand in a dark stable during mid-day, and turn them out near nightfall. Horses, when at work, need the protection of a fly-sheet. This is easily made, and prevents much fretting....Lambs are now separated from the ewes, and should be pastured as far apart as possible. Place some wethers with the lambs to lead the flock, and in a few weeks the lambs will be entirely weaned.... Pigs for early fall market need to be pushed vigorously, with abundant feed at the trough. The apple orchard makes a fine pasture for swine. The falling fruit is usually wormy, and the pigs, in eating it, destroy hosts of insects, to the mutual benefit of the swine and the orchard.

The Fruit Garden in August.

As soon as the raspberries are off, cut away the stems that bore them, and encourage the new stalks. ....Blackberries often color long before they are ripe; for home use or a near market, let them be ripe; if to be shipped to a distance, they must be firm. Cut away all suckers not needed....Watch grape vines for the first signs of mildew, and apply sulphur; hand-pick the beetles and large caterpillars; keep the laterals pinched back, leaving one leaf of the new growth; remove shoots which start where they are not needed; keep bearing shoots well tied up....Strawberry plants layered in pots may be set out. Can or dry surplus fruits.

August Work in the Orchard.

The cultivator, whether of orchard or garden, has never a season of leisure; but if there is any month, except in winter, in which work is the least pressing, it is the present. Recreation may well be taken now. One may recreate both body and mind in various ways, as with a fishing excursion, camping out, etc., without other object than rest and change. Excursions to the lakes or to the sea-shore will be preferred by many. A profitable kind of recreation is to visit the orchards and gardens of others; relief from home cares is obtained, and much may be learned. Cultivators, as a rule, gladly welcome others who are interested in the same pursuits.... Preparations for the fairs should not be lost sight of. Encourage the local fair by competing for prizes, and if any are awarded, be sure and take the money. Nothing destroys the common interest in the fair so quickly, as for those who do not think they need the money, to decline to take the awards. If only twenty-five cents, take it and be proud of it....Newly planted trees will be helped by a mulch; keep off late insects, and do not allow weeds to grow....Budding will begin this month. Keep a close watch on the pickers....Early apples and pears are often more profitable than late kinds. Assort and pack them in attractive manner.....Dry surplus fruit, and use the windfall apples to press for vinegar.

Kitchen and Market Garden.

When a crop of any kind is off, at once clear up the refuse; much good food for cow, pigs or poultry may be saved. Spade or plow the ground, manure if need be, and put in some other crop, or sow to buckwheat, to be turned under later....Sow this month; spinach, for fall use, next month is early enough for the crop for spring; beets, of the early kinds for greens; turnips, of the Yellow Stone, Aberdeen, and Cow Horn varieties, and bush-beans, for pickling and late use. Some of the early Peas may yield a crop, but if the season is unfavorable, mildew will take them. The hoe is the great implement this month, whether in the form of the hand-hoe, or the various kinds of cultivators, and should be used freely, whether there are weeds or not, for the benefit of the crop. Cabbage, celery, etc., grow all the more rapidly, if the surface of the soil is kept light and mellow....Thinning is rarely overdone; Ruta Bagas should be at least ten inches apart. If carrots, late beets, salsify, etc., still stand too thickly, draw out for use those that crowd one another....Egg plants must be kept free of the Colorado-beetle; place hay or straw under the fruit, to keep it from the ground....Sweet corn stalks, as soon as the ears are gathered, should be

cut up, and if not needed by the cows, cured for winter; burn all "smutted" stalks....Hoe melons as long as the vines will allow, and after that, pull large weeds by hand; as the fruit approaches maturity, place a shingle or thin board under it, to promote equal ripening....Harvest onions when the tops fall over, and let them cure a few days in the sun; store in any airy place, where they can be spread....Sweet potatoes should be kept free from weeds, and the vines moved, to prevent them from taking root....Keep tomatoes tied up to the trellis; watch for the large "worm," which eats foliage and young fruit, and hand-pick....Weeds are the chief care this month, and "pussley" is a sure indicator of the industry of the gardener.

Bee Notes for August.

There is, during August, a notable scarcity of honey flowers. This dearth commences sometimes early in July. When this absence of bloom occurs, the bees are idle, and with this comes a consequent indolence of the queen. She stops egg-laying, brood rearing ceases, and the hive is losing in numbers. The queen will not lay again at her best, even when the fall bloom comes. We have often noticed this tardiness of a queen to resume when once she has wholly stopped laying at this season. In the absence of bloom, it pays well to feed the bees, and thus keep up the breeding. It takes but a little syrup or honey each day, one-half pound is sufficient, and, with our convenient feeders, it is easily and quickly done. We have experimented in the matter over and over again, and have always been impressed with the wisdom of such practice. This feeding keeps the number of bees up to the full standard, and the bees in prime condition to appropriate the autumn nectar. The bees are not all old in late autumn, and are in better condition to resist the dangers of winter and spring.

It is desirable to provide artificial pasturage. By proper planting, we may have nectar-secreting bloom all the season, and there will be no need of supplemental feeding. The Syrian bees seem to breed on all the same, whether there are flowers or not. It is probable that in the desert regions of Syria, natural selection has produced this race, well fortified against those famous famines which, of old, sent the patriarch to Egypt for bread and corn.

THE NORTH AMERICAN ASSOCIATION.

It will be remembered that the North American Association of Bee-keepers will convene at Toronto, September 18th, 19th, and 20th. This is the second week of the Exposition, and great pains are being taken to make it the greatest occasion of the kind on this continent. We understand that large delegations of bee-keepers will be sent from New England, New York, Michigan, Indiana, and other States; even the distant South will doubtless put in a generous appearance.

A NEW BEE ENEMY.

We have just received from a bee-keeper of Connecticut some small mites, with the news that they are depleting the hives with discouraging rapidity. These are closely related to the Chicken Mites, which often cause such mischief in our poultry yards. It will be hard to destroy these, for what will poison them will almost surely destroy the bees. At present we can only suggest a process of sifting, by frequently changing the hives. It is possible that there can be some material placed above the brood chamber that will attract the mites, and yet be so screened as to keep the bees away. Such a substance should be sought for, and used to the best advantage.

Fast American Trotters.

The more thorough-bred horses there are in the country, the greater will be the improvement of horses in general. Blood will tell. As the stallions offered for farmer's use become of higher character, the greater will be the value of the stock he raises. While every one can not expect to command animals of the very highest grade, it is well to constantly improve, and to know what are the best animals our breeders produce. With this view, we give portraits, accurately drawn from life specially for this Journal, by Edwin Forbes, of the two fastest trotting teams in the world. The upper span, "Edward" and "Swiveller," owned by Mr. Frank Work, a prominent member of the New York Stock Exchange, held the front rank for nearly a year, or from July, 1882, having made the previously unequalled time of a mile in 2 minutes 16¾ seconds. But now Mr. William H. Vanderbilt himself, holding the ribbons over his "Maud S." and "Aldine," has brought the best trotting time for a double team down to 2.15¼. (See illustration on page 353.)

"Maud S." is a chestnut mare, foaled in 1874, and bred at Woodlawn, Ky., by A. J. Alexander. She is sired by "Harold"; dam "Miss Russell." Her record of 2.10¼ was made at Rochester, N. Y., August 11th, 1881. She stands fifteen hands and two inches high.—"Aldine" is a bay mare, foaled in 1873, and bred at Midway, Ky., by Mr. Wetherspoon. She is sired by "Almont"; dam "Mother Hubbard." "Aldine" trotted through the circuit last year, and made her best time, 2.19½, at Hartford, Conn. "Maud S." and "Early Rose" were driven a mile to skeleton wagon at Hartford, last autumn, in 2.16¼.—"Edward" is a chestnut gelding, foaled in 1872, and bred near Coldwater, Mich. His sire is "Fisk's Hambletonian Star." He made a record of 2.19 at Providence, R. I., Sept. 3d, 1878. "Edward" stands fifteen hands and three inches high. — "Swiveller" is a bay gelding, foaled in 1870, and bred at Cazenovia, N. Y. He made a record of 2.18 at Utica, August 22d, 1879. He is of the same hight as his driving mate.

Trotting horses are of but modern development, mainly in this country. W. H. Brewer, Professor of Agriculture in Yale College, who has made a special study of the development of the American Trotting Horse, has prepared a table of the "best records," and the gain in the rate of speed within the present century. In 1806, "Yankey" trotted a mile just under three minutes (2 min. 59 sec.). This was beaten ¼ second only in 1810, by a Boston horse. Fourteen years after (1824), "Top Gallant" led all others with the famous "two-forty" gait. Ten years later, "Edwin Forest" brought the record down to 2.31½. In 1844, "Lady Suffolk" crossed the line in 2.26½. Since that date, the gain in speed has been about half a second a year. In 1853, "Tacony" took off one second, and in 1856 "Flora Temple" subtracted another, and in 1859 she made herself famous the world over by trotting a mile in the unprecedented time of 2.19¾. This was beaten in three successive years by "Dexter," with the following records: 2.18¼, 2.18 and 2.17¼. "Goldsmith Maid" held the trotting field from 1871 to 1878, and reduced the best record to 2.17, 2.16¾, and finally to 2.14. "Rarus" led in 1878 with a time of 2.13¼; but this was beaten by "St. Julien" the following season in 2.12¾. The leading horse to-day is "Maud S," which came to the front in 1880 with a mile in 2.10¾, and the next year reduced the time to the lowest point of 2.10¼.

A second and very interesting table shows, that of the 2.30 (or better) class, there was only one in 1843; fourteen in 1853; fifty-nine in 1863; three hundred and seventy-six in 1873; and fourteen hundred and twenty-one for last year; of the 2.25 (or better) class there was not one until 1856; ten years later there were seventeen; and after another period of ten years the number had grown to one hundred and sixty-five. Last season there were four hundred and ninety-five horses in America, that trotted within 2.25. Of the 2.19 class there was not one until 1865 (Dexter), but there are no less than sixty that now trot better than the best time of "Flora Temple." We have eighteen of the 2.17 class; eight in the 2.15; two within 2.13, and one better than 2.11.

The trotter was not held in esteem in ancient times. The horse of war was a riding horse, and many of the Oriental breeds, as the Persian, Arabian, and Turkish are the best riding horses in the world. The charger is a galloping steed. The demand until recently has not been for trotters. Another cause for the development of the American trotting horse has been the great improvement in roads. Until long after the Revolution we had but few roads fit for fast driving. Light and strong vehicles are necessary for successful trotting, and these are of recent construction. Here we find another element in the formation of the trotter as existing to-day. It was not until 1830 that light four-wheeled wagons became at all common, and these were without springs.

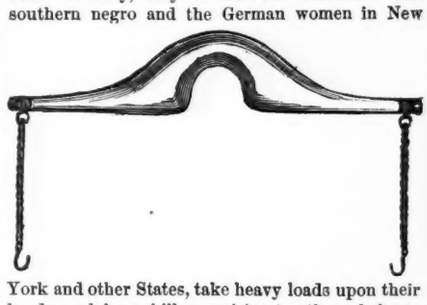
A buggy with light steel springs is of quite recent date; they were not common in the older cities of the Eastern States until 1845, and in many places their introduction was much later. The light trotting sulky, made of tough hickory and provided with light steel springs, has been a leading cause of the present development of the trotter. The perfecting of the vehicle and that of the horse have gone on together.

Much of the better qualities of the present trotter is due to the infusion of the English thoroughbred blood, a number of which animals were imported about the close of the last century. Prominent among these running horses is "Messenger," the sire of a numerous progeny. He is believed to have exerted a greater influence on the American trotter of to-day than any other animal. There was a strong public sentiment against horse-racing, that is, running horses, and "trials of speed" of trotters came in to take the place of the regular running race, and furnished a sufficient opportunity for betting, etc. This, no doubt, has done much to improve the speed of our roadsters, even at the expense, sometimes, of public morals. Fast trotting in itself, with much that surrounds the trials, is unworthy of our civilization, but the effect of careful breeding for trotters has been of untold value to our country. The needs of our modern methods of business require quick roadsters, and there is no doubt that the latest development in horse-flesh, the trotter, is the best, even though it came largely through the stimulus that the race-track has given.

Trotting "to pole," or in double team, for various reasons, is slower than that of single horses, but the difference in the best records is now small.

"Toting" Things—A Shoulder Yoke.

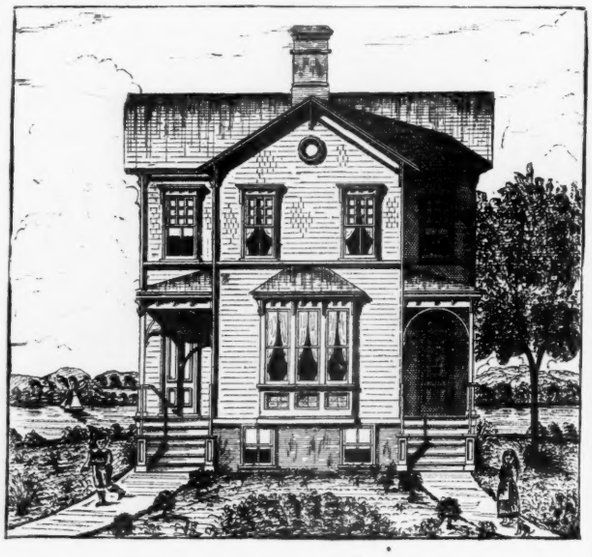
The methods adopted by those who have heavy loads to carry, vary in different localities. The southern negro and the German women in New



York and other States, take heavy loads upon their heads, and by a skill surprising to others, balance the load as they walk along, without scarcely ever touching it. Carrying heavy loads upon the head is not to be commended. The shoulders are the best support, as those who sell milk and other commodities know. The very common device, the shoulder yoke, used by these people, may often be of service on the farm. It consists of a piece of wood, like that shown in the engraving, wrought in a shape that will allow of an equal distribution of the pressure upon the shoulders. In order to accomplish this, a place is hollowed out for the neck. The ends are provided with chains and hooks.

A Double Cottage, Costing $2,500.

The plans shown in figures 1, 2, 3, and 4, are for a double cottage suited to villagers and small farmers. It provides five fair-sized rooms on separate floors, and ample cellars for two families, each with front and rear entrances. The extreme outside measurements are twenty-eight by forty-three feet. A plot of ground fifty feet in width, and of the usual depth, would be of sufficient size, placing the building in the middle, and leaving a space of eleven feet on each side. The balance of the ground may be equally divided for the separate use of each family occupying the house....**Exterior** (fig. 1).—The front elevation indicates the character of the building. The separate porches, windows, and other parts are symmetrically arranged, and give a pleasing effect, which is sustained on the sides and rear. The foundation is four feet above ground, giving the building a desirable altitude for appearance, and affording opportunity for good-sized cellar windows for light and ventilation. ....**The Cellar** (fig. 2) extends under the entire building, and is equally divided by a close partition, extending from front to rear. Each half has four windows, an outside entrance, and stairway. Hight of ceiling is six and a half feet....**First Story** (fig. 3).—The hight of ceiling is nine feet. The front and rear entrances are on the left side, one leading to the front vestibule, and the other to the rear entry. The parlor and living room are of good dimensions, well lighted, and are entered directly from the front vestibule. There are three bedrooms, four closets, and a flight of stairs to the cellar. There is no communication with the entrances or stairways of the second story ...**Second Story** (fig. 4).—The hight of ceiling is nine feet. The entrances are on the right side, and similar to those on the opposite side for the first story. The vestibule and rear entry are enlarged, to contain the necessary front and rear stairs leading to the second story and cellar. The arrangement of the rooms on this floor is the same as in the first story....**Construction.**—The cellar excavations are two and a half feet. The foundation walls are of hard brick and mortar, eight inches thick. The frame is of seasoned spruce; siding for the first story is of beveled pine clapboards, laid four-fifths, to show on heavy, rosin-sized sheathing felt. The second story has red wood shingles laid on sheathing, one-third to show. The roofs are of eighteen-inch pine shingles, laid on spruce shingling-lath. Outside floors are of one and one-eighth by four-inch T & G pine, close-laid in paint, and blind-nailed. Inside floors are of one and one-eighth by seven-inch T & G spruce, close-laid and double-nailed to each bearing. The interior finish is pine; jambs rabbeted of plank; architraves three-quarter by five-inch reeded, with base and corner blocks. The base in all parts is eight inches wide. The window finish, with panels, extends to the floor. All sashes are one and three-eighth-inch thick, glazed as indicated on the elevation, with second French glass, and hung to balance weights. The doors are of pine, panelled and molded; saddles of hard-wood, molded. The interior walls are hard-finished on two coats of brown mortar, and seasoned lath. All work usually painted has two coats of pure lead and linseed oil, with the addition of such stainers as will produce the desired shades. A sink and pump, with the necessary pipes for supply and waste water, are provided, and set in each story. The closets are shelved and hooked in the usual manner. All wood-work exposed is clear of knots, and the labor is performed in a substantial manner.



FRONT ELEVATION OF A $2,500 COTTAGE.

Estimate.—Cost of Materials and Labor.

77 yards Excavation, @ 25c. ℔ yd.	$19.25
12,000 Brick in Foundation (complete), @ $15 ℔ M.	180.00
4,000 Brick in Chimneys (complete, @ $15 ℔ M.	60.00
60 feet Blue Stone, Steps and Coping, @ 30c. ℔ ft.	18.00
850 yards Plastering (complete), @ 30c. ℔ yd.	255.00
116 Stucco Cornices (complete), @ 25c. ℔ ft.	29.00
3,400 feet Timber, @ $20 ℔ M.	68.00
175 Joist Studding and Rafters, @ 16c. each.	28.00
200 Wall Strips, Studding, and Ceiling, @ 11c. each.	22.00
620 Clapboards, @ 16c. each.	99.20
275 yards Felt, @ 8c. ℔ yard.	22.00
116 feet Cornices (complete), @ 20c. ℔ ft.	23.20
270 Shingling Lath, @ 6c. each.	16.20
50 bunches Shingles, @ $1.50 ℔ bunch.	75.00
200 feet Tin, 128 feet Gutter and Leaders (complete), @ 10c. ℔ ft.	32.80
2,450 feet Flooring, Inside, @ 3c. @ ft.	73.50
108 feet Flooring, Outside, @ 4c. ℔ ft.	4.32
4 Porches and Stoops (complete), @ $30 each.	120.00
4 Flights Stairs (complete)	100.00
8 Cellar Windows (complete), @ $4 each.	32.00
17 Windows (complete), @ $10 each.	170.00
4 Circular Windows (complete), @ $3 each.	12.00
31 Doors (complete), at $8 each.	248.00
4 Mantels (complete), @ $20 each.	80.00
2 Sinks and Pumps (complete), @ $25 each.	50.00
7 Closet finish (complete).	27.00
5 Kegs Nails, @ $4 ℔ keg.	20.00
Cartage.	25.00
Painting (complete).	200.00
Carpenter's labor (not included above).	250.00
Incidentals.	140.53
Total cost.	$2,500.00

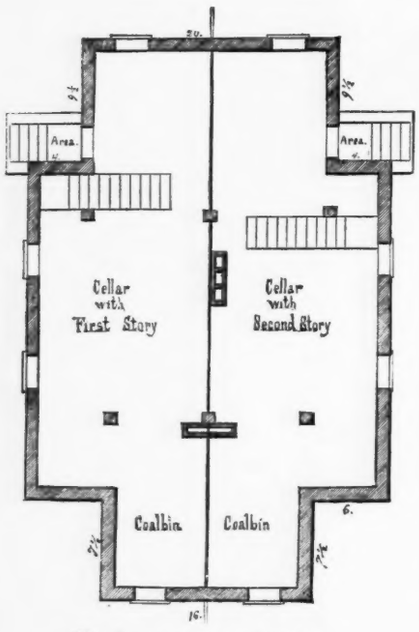


Fig. 2.—PLAN OF THE CELLAR.

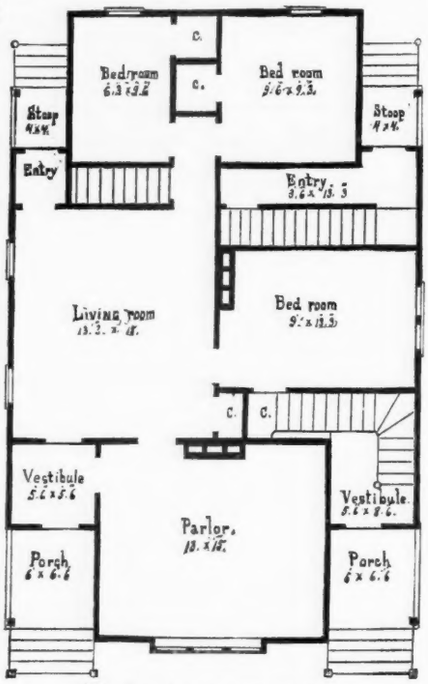


Fig. 3.—PLAN OF FIRST STORY.

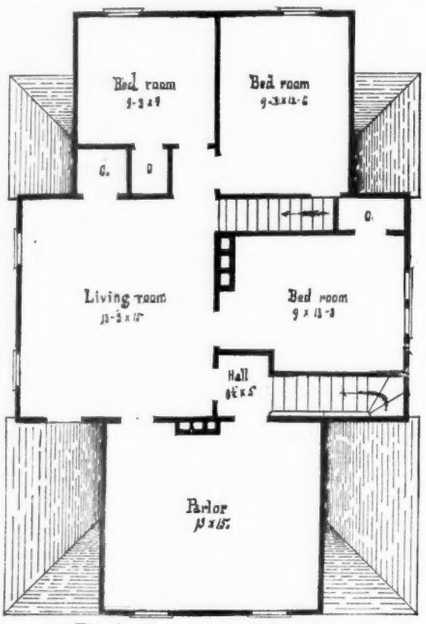


Fig. 4.—PLAN OF SECOND STORY.

Peach Trees from the Seed.

"G. S. N.," Allegheny Co., Pa., is in a controversy with some of his neighbors. It is claimed that seeds from a seedling peach tree will always produce the same kind of fruit as the parent tree, while seeds from a budded tree will not yield the same fruit, and the question is referred to us. The fact of budding has nothing to do with the case, other than this: only the finest kinds of peaches are budded, and as these are as far as possible removed from the natural state of the peach, it is likely that their seedlings may not produce fruit equal to the parent. It is well known that some varieties are reproduced with great fidelity from the seed. The "Columbia," for example, has yielded a number of seedlings, which are not to be distinguished from the parent. As a rule, the poorer the peach, the nearer it is to its original form, the more likely it is to reproduce itself. If a poor kind of peach were budded, the seeds from it would reproduce the same kind. Budding does not affect the case in any manner. The seed of an

excellent peach, whether from the original tree, or from one that has been propagated from it, will, in the majority of cases, produce a tree which will yield a fruit that is inferior to the parent.

Can I Provide My Own Lightning Rod?

The above question is, in brief, the purport of a number of letters that have come to us since our mention of the swindling "Rodders." A lightning-rod, improperly constructed and placed, instead of being a protection to the building, may be a source of danger. In cities and large towns, there are persons who make a business of erecting lightning rods; some of these, in cities, make it their sole occupation, while in small places, intelligent blacksmiths and other mechanics add it to their ordinary business. Sometimes these are persons who have studied the laws of electricity, and do their work in conformity therewith. The maker of lightning-rods is all the better qualified for his work by being an electrician, and where practicable, it is safer to employ such, but a large proportion of our readers live where the services of these qualified mechanics can not be secured, and must either provide the rods themselves or do without them. While the proper construction of a lightning-conductor depends upon the observance of several scientific principles, the mechanical work may be done without a knowledge of these, if directions founded upon them are carefully followed. We are often asked if lightning rods are necessary. Having known houses to be struck that were provided with them, many persons assert that rods are no protection. Since the days of Franklin, who invented lightning-rods, hundreds of scientific men have studied the subject, and all are agreed that buildings may be perfectly protected by properly constructed rods, and in the cases where houses have been injured, the rods, on examination, have invariably been found to be imperfect. Where there are tall trees in the vicinity, a building is seldom struck; while one in an exposed situation, where the building is the highest object, is in constant danger. Those who propose to provide the lightning-rods themselves have several things to consider: 1st, the material of the rod; 2d, the manner of fastening to the building; 3d, how wide an area one rod will protect? 4th, the upper end, or point; 5th, the lower end. The last, if not the most important, needs special attention, as improper termination of the rod is the cause of most of the accidents that have befallen buildings supposed to be protected!

First. As to the rod itself. It is well known that copper is a much better conductor of electricity than iron, but it is so expensive that iron is most generally used, making the rod much larger than would be necessary if it were of copper. The shape is of no consequence, and the twists and grooves in some "patented" rods are merely to beguile the ignorant. The rod may be of round 7-16-inch iron, or it may be a flat strip an inch wide and 3-16ths of an inch thick. If more convenient to procure, larger iron may be used, but it should not be smaller than these sizes. It is very important that the rods be continuous. The pieces of round iron may be joined by couplings, which are cut with a screw-thread on the inside, while the ends of the rods are made to fit. The portions are usually joined by welding.

Second. The manner of fastening to the building. At one time it was customary to pass the rod through a glass ring, which was fastened to the building, and the rod thus kept from contact with it. But insulators of this kind are quite useless, for as soon as they are wet they cease to insulate. The rod may be attached by staples. There is not the least danger that lightning will leave the rod to pass into the house by way of the staples. A flat rod may be fastened by a strap of iron fashioned to clasp it. Should the rod be painted? Some years ago there was an idea that the conducting power of the rod would be injured by painting it. This is not true. Paint the rod of any color that will make it as inconspicuous as possible.

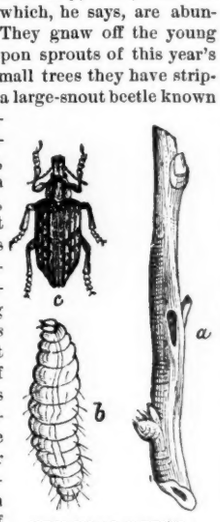
Third. How far will a rod protect? The old rule was that a rod would protect an area with a radius twice as great as the hight of the rod. In practice little attention is paid to this rule, it being customary to provide each chimney with a rod, which, in most houses, will bring them much nearer than the above rule requires. Each chimney should have a rod, connected with the main rod, which runs along the peaks of the roof and to the ground. Upon all ordinary buildings but one main rod is needed. If there is a roof of tin or other metal, this, as well as all iron crestings and other ornaments, should be connected with the rod.

Fourth. The upper end of the rod. Formerly much stress was placed upon having the rod terminated above by a very sharp point, which should be kept gilded to protect it from rust, and later, platinum points were used. At present neither of these are regarded necessary. The rod extends a foot or two above the top of the chimney, and is filed to a point. The various ornamental crestings much used on buildings answer as points. If the chimney is a long distance from the gable-end of the roof, it is well to place a short upright piece of rod there, which should, of course, be pointed.

Fifth. The lower end of the rod. The mere placing of the lower end of the rod in the ground, so that it will be out of sight, will make the rod intended as a protection a source of danger, and the building would be safer without it. The whole object of the rod is to carry off the electricity quietly, and its usefulness depends upon a proper termination in the ground. Dry earth is a poor conductor; moist or wet earth is a good conductor. The lower end of the rod should reach a place where the earth, in the dryest time, is always moist. Some dig down to this point and then surround the lower end of the rod for a few feet with coke, which absorbs moisture and is an excellent conductor. The ease of finding a moist stratum for the rod will differ with the locality, but it should always be secured.

The New York Weevil.

Mr. L. D. Webb, Dane County, Wis., sends us specimens of an insect which, he says, are abundant in his orchard. "They gnaw off the young limbs, working chiefly upon sprouts of this year's growth. Some of the small trees they have stripped bare"—This pest is a large-snout beetle known as the "New York Weevil." It prefers the tender growth of the apple, but will make free with that of the peach, plum, pear, and some forest trees. The beetle belongs to the same family of insects as the plum curculio, and bears the long scientific name *Ithycerus Noveboracensis*, the last part of which means "of New York," and was given to this pest a hundred years ago. At the present time it is far more common in the Mississippi Valley than in the East. The color of the weevil is ash-gray, marked with black. For a long time its early states of larva and pupa were unknown, but now it is ascertained that it breeds in forest trees, especially the bur oak. In depositing her eggs the female makes a longitudinal cut with her jaws, and then turns round and thrusts the egg into the excavation. The larva is pale yellow. The punctured branch (*a*), larva (*b*), and weevil (*c*), are shown in the engraving.



NEW YORK WEEVIL.

The same method of capturing the beetle is to be employed as with the plum curculio. Place sheeting under the infested trees, and jar down the beetles by giving the tree a sudden shake or a stroke with a mallet. The piece of sheeting may be nailed to strips of wood, and easily carried from tree to tree. The fallen insects may be crushed, burned, or placed in a dish of water, upon which floats a small quantity of kerosene. It is best to do the work in early morning, when the beetles are sluggish, and they do not readily fly away.

The Grape Vine Plume.

A caterpillar with a very long name (*Pterophorus periscelidactylus*) works in an interesting manner upon the grape vines. About the time the third cluster is forming on a vigorous shoot, the young leaves at the extremity may be found fastened together, making a cavity, in which one or more caterpillars find a retreat. The mature insect is a moth of a tawny yellow color, with a very rapid flight. The wings are split up into feather-like lobes, and on this account the insect is known as the Grape Vine Plume. The larvæ hatch soon after the grape leaves begin to expand. At first the caterpillars are nearly smooth, but after each change of skin the hairs become larger and more numerous. They feed for about a month upon the tender grape leaves, and then, fastening themselves by the hind legs to the under-side of leaves, etc., they change into the inactive or pupa state. A second brood is not known, but if there is one, it can do but little injury.

The method of treatment is hand-picking. The part attacked should usually be removed in the summer pruning or pinching, and therefore the Plume is not very destructive. Sometimes the third cluster of grapes is included in the fold of leaves and silken threads, and if this is to be preserved, care must be taken in removing the unsightly twisted tips of the infested branches.

Summer and Autumn Blooming Shrubs.

The great majority of ornamental shrubs produce their flowers in spring, and we often see collections all aglow in the early months, that show nothing but foliage for the rest of the year. With proper care in selection, the shrubbery may be made attractive at all seasons. In choosing shrubs for planting, regard should be had not only to flowers, but to fruit, as some are more ornamental in fruit than in flower. Of the late blooming shrubs, none are more desirable than the Japanese *Hydrangea paniculata grandiflora*. This produces at the end of each stem a large pyramidal cluster of flowers; these are, at first, pure white, gradually becoming pinkish, the color deepening, until frost comes. By pruning this shrub severely, the panicles may be produced of enormous size, so large as to require a stake for support. It is perfectly hardy, and one of the most valuable introductions of late years. The old Japan Globe-flower, *Kerria Japonica*, is not properly appreciated. It will, if neglected, become a nuisance, but when properly pruned, and its straggling stems tied up, its golden balls will enliven the shrubbery all summer. A capital subject for the lawn is the Small Buckeye, (*Æsculus parviflora*,) of the Southern States. It forms a round-headed, dense clump, with many stems, and in July and August is covered with panicles of white flowers, forming a most beautiful object. The old Rose of Sharon, *Hibiscus Syriacus*, (called in the old catalogues *Althæa frutex*), is a most desirable shrub. It has been much improved of late years, and the best nurseries now offer both double and single varieties, in color from white to deep purple. As these bloom in August and September, when few others are in flower, they are most valuable shrubs. They need close pruning each year, otherwise they will grow very straggling.

Among shrubs valuable for their showy fruit, the different species of *Euonymus*, or Burning-bush, are desirable. The native *E. altropurpureus*, or "Wahoo," is excellent, but our favorite is *E. latifolius*, the "Broad-leaved Burning Bush," from Central Europe. This is as yet rather scarce, but would be propagated more generally, were its merits known. The common Snow Berry (*Symphoricarpus racemosus*) on account of its abundant white berries, is showy in autumn. In selecting shrubs for their autumn effect, the old "Smoke-

tree," often incorrectly called "Purple Fringe," (*Rhus Cotinus*), the "Wig-tree" of England, should not be forgotten, as it is perfectly hardy and very showy. Among climbers, the Japanese Hall's Honeysuckle (*Lonicera Halliana*), is a most valuable introduction. It blooms, and keeps blooming, and never tires. Our native Trumpet-Creeper (*Tecoma radicans,*) and its oriental brother (*T. grandiflora,*) are valuable for their rapid growth, and their abundance of trumpet-shaped, orange-scarlet flowers, produced from July to October. Some of the improved varieties of Clematis are late bloomers, and our native Virgin's Bower (*C. Virginiana*) gives a wealth of white flowers in August, and its clusters of fruit are beautiful later. Among the vines, ornamental for their fruit, the Roxbury Wax Work (*Celastrus scandens*) should not be overlooked. If allowed to run upon a tree, it will soon kill it, but upon a trellis it is valuable for its glossy foliage and scarlet fruit. By proper care in selecting, the shrubbery may be attractive from early spring until frost comes, and even later.

Making a Lawn in Autumn.

Some of our correspondents appear to hesitate about laying down a lawn at any other time than in spring. If given the choice, we should prefer autumn. When the grass seed is sown in spring, unless a good "catch" is made very early, the young grass has to contend with a daily increasing temperature. If sown in the fall, the cool nights, with their refreshing dews, restore the plants, and they grow rapidly during the warm days, while there is, usually, at this season, an abundance of rain to encourage growth. It is sometimes recommended to sow oats with the grass seed; however useful this may be in late spring sowing, it is not at all needed in autumn. Oats are of doubtful utility at best; whether the good they do, by shading the young grass, is not more than offset by depriving it of needed nourishment, is a question. At all events, oats at this season are not needed.

In making a lawn now, as at any other season, it is well to recollect that the work is to be done for many years, and that in no part of the grounds will thorough preparation, deep tilling of the soil, and abundant fertilizing, pay better than here. In a lawn of considerable extent, it is a mistake to suppose that it is necessary to reduce the surface to a dead level. For small grass plots, on small places, this may be desirable, but a large lawn appears to much better advantage if the surface is gently undulating. Various mixtures of seed are offered by the seedsmen. Some of these seem to be well considered, but anything more unsuited to our climate than the "French Lawn Grass," can not be imagined. Probably not a third of the kinds of grass it is said to contain, will survive in our climate. The best lawns we ever had were sown with "Kentucky Blue-grass" and "Rhode Island Bent" (a variety of Red-top), in both cases a small amount of "White Clover" was added. For strong soils, the former, for light and sandy ones, the latter, will no doubt give satisfaction. In buying grass seed for a lawn, look well to its quality. Some seed of "Kentucky Blue-grass" (the same as "June Grass") sells for twice the price of others, and is worth four times as much. Chaff does not always cover seed, and the samples should be carefully inspected. The advice to use from three to eight bushels of seed to the acre, is founded upon the uncertain quality of the seed. Probably four bushels of fairly good seed would be ample. The seed should be divided into two or four equal portions, and the sowing made, after thoroughly preparing the soil, in different directions. The seed may be brushed in, but at this season, a good rolling will give a sufficient covering. Where the lawn borders on roads or paths, or on shrubbery or other plantations, it will be best to lay a margin of turf, six inches or more in width. For small areas, the laying of sods is advisable, and this may be done now, as well as in spring. In most localities, a common, or the road-sides, will usually afford a fine, close turf. The soil, in this case, should be as thoroughly prepared as for seeding, and the turf well beaten down, to bring its roots in close contact with the soil. If necessary to cover steep banks, sods must be used. These may be held in place by the use of pins; plasterer's lath split, is best. These will decay by the time the sod becomes well established.

Early Greens for Next Spring.

The city markets in the early part of spring, and often in a mild spell in winter, abound in "greens," and there is no reason why these should not be equally abundant on every farm. Where the meat served is to a great extent salted, green vegetables are not only acceptable, but necessary to health. Cabbage is for many so indigestible, that it can not be eaten, and where this difficulty does not exist, a variety is always welcome. Spinach, the most delicate and palatable of all the vegetables used as greens, can be raised on any good farm land, and with very little trouble. The soil being well prepared by the use of the plow and harrow, mark it off in fifteen-inch drills, and sow the seed rather thickly, covering it with about half an inch of soil. Use a roller, or pat the soil down firmly with the hoe or back of the spade. Some carefully go over the rows and tread down the soil over them. The fall rains soon bring up the plants; they will grow rapidly and be large enough to gather in September or October. For use at this time, the plants, where they are thickest, are to be cut out at intervals, using a stout knife, leaving the remainder room to grow. Where the winters are severe, scatter straw, leaves or other litter between the rows, and slightly cover the plants. As soon as the ground thaws, cuttings may be made, and if this is done so as to thin the plants a second time, the rest will grow all the larger, and be ready to use later. "Sprouts," as it is called in the market, is a variety of kale, a cabbage that does not head. This is cultivated in the same manner as spinach. If a farmer finds that he has more spinach than can be consumed at home, a few barrels of it will meet with a ready sale at the nearest market.

Preparing Fruit for Market.

"Farmers are cheats," we heard a city man remark the other day. "I do not buy a basket of strawberries that has not the best and biggest on top, and when the peach season comes, I get a dozen or two of fine peaches at the top, while the rest of the basket is filled with small, green and gnarled fruit; they are all cheats." The very next day after hearing this remark, we were among the fruit commission houses, and in one place saw some young men, who had bought several crates of berries to peddle. They had a lot of smaller baskets, to which they transferred the berries from the larger ones they had bought, and as they filled these, they topped them with the largest berries with surprising dexterity. We concluded that all the cheating, in strawberries at least, was not done by the farmers. That there is much "deaconing" (the market phrase for topping) of peaches and other fruits, we do not doubt, yet the tendency is all in the other direction. Take peach-growers, for example, those who are regularly in the business, and expect to continue it, strive to make their brand upon a crate or basket a guarantee of honest packing. This is insisted upon at all the meetings of peach-growers; only recently we received the transactions of a fruit-growers' society in North Carolina, in which this point, honest packing, was dwelt upon at great length. "Honesty is the best policy," is not a proverb of the highest moral tone, as it implies that it pays to be honest, but the peach-growers are willing to adopt it. In packing peaches, the first point should be to assort them, making as many grades as the condition of the fruit requires. When brought to the packing shed, the fruit is at once thinly spread in the shade, in order that it may cool as much as possible. In assorting, any that are at all soft are put aside, to be left at home; then two or three qualities, extras, firsts and seconds, are made, and with the best growers, the packages of each are alike all through. It is allowable to turn the colored sides of the top layer uppermost, in order that the fruit may appear at its best, but not to select large specimens for the top layer. Those who send peaches to market for the first time, will find it to their advantage to observe this rule. In packing grapes for market, the box is opened at the bottom, fine large bunches are laid in and the box filled up with smaller bunches. This is done in order that the fruit, when the top is taken off, may present a good appearance, and if the filling is done with good fruit, even if not the most select, there is no harm done. But if, as is sometimes the case, poorly-ripened fruit, and even loose berries are used to fill up, the grower will in time find that his brand is not in demand in the market. The fruit-grower, who expects to continue in the business, can not well afford to pack his fruit dishonestly.

Saving Seed Corn.

The growing of good, sound seed corn, that will yield a maximum crop, properly begins a year beforehand in the shaping of the character of the seed. Therefore select the seed for 1884 and 1885 from the ears already growing in the field, and give it special care. As a rule, any thrifty farmer can raise better seed than he can buy, and it should be in his programme every year to give his personal attention to the growing of his own seed corn. There is money in it. The average yield of Indian corn for the whole country is not far from twenty-five bushels to the acre, and the total yield sometimes reaches one billion seven hundred million bushels. With the best husbandry, which means good seed, good soil, manure and tillage, it is not difficult to raise seventy-five bushels to the acre. If fine, sound seed corn, with a good pedigree, would add only ten per cent to the yield of this crop, it would increase the annual yield one hundred and seventy million bushels, worth eighty-five million dollars. Every thinking farmer must see that he has a money interest in securing sound seed corn, and in knowing just what he plants. He is suffering loss every year, probably from want of a little timely attention to this matter. He uses unsound corn, possibly, for seed, selects from the corn-crib the best he can find, or borrows from a neighbor as careless as himself about the seed that he plants. A part of the corn rots in the field, and he has to plant over, which makes extra expense. The late planted corn is caught by the frost, and he suffers loss in the large proportion of soft corn that he harvests. The stover is not as well cured for fodder, and cattle refuse the mouldy mass. Heredity counts for as much in vegetable as in animal life. To get maximum crops, you must have seed perfect after its kind, with the normal quantity of starch, gluten, oil, and other constituents that belong to it. The plant must be well fed, cultivated, and ripened in its appropriate season to mature this kind of seed. We say, then, select your ears for seed corn, as they stand upon the stalk, in August or September—perfect ears, well capped. Put a string upon them, or some mark, by which they can be identified, and let them mature upon the stalk. To make sure of perfect drying, hang them up in bunches upon the south side of a building, or in a well-ventilated loft, or room with a fire in it. The perfect drying of seed corn is an important item. The corn should not be shelled until the cob is thoroughly dried. When you are ready for planting, pour the seed corn into a vessel of water, and skim off every kernel that floats. That which sinks to the bottom of the water is the best, and, with suitable conditions of soil and climate, will germinate and bear fruit after its kind. Corn yields very kindly to all intelligent efforts to increase its productiveness and improve its quality. By selecting ears from stalks that bear two or more ears, you can increase the number of ears. By selecting ears of twelve or more rows, you can increase the number of kernels upon the cob, always provided that you give the corn plant food enough to do its best in the harvest. Farmers who look carefully after their seed corn, and raise seventy-five bushels to the acre, do not doubt that it is a paying crop.

Tropical Farming.

There is but little dignity about farming in the tropics. It is true, there are great plantations of sugar and coffee, but the owners of them are either

Fig. 1.—A YAM MERCHANT.

companies, formed abroad, and represented by overseers and officers, or proprietors who are far too aristocratic to touch a hoe-handle, or harness a team. The white man does not work in the warm latitudes. The farmer proper of the tropics is in the main little better than the slave, whose place he occupies. In the West Indies he is invariably a negro; on the continent of South or Central America a half-breed, or rather a hybrid, the result of a couple of centuries of Indian, Spaniard, and negro cross-breeding. But wherever he is, he is always wretchedly ignorant and poor. He always farms in a very small way, and by the most primitive methods. An acre of ground constitutes a large farm. He never plows, the hoe and spade being his only tools. He raises yams (fig. 1), and kindred indigenous vegetables, and very good crops of them, too, for he has a fertile soil to aid him. He never plants on poor ground. If he lives near a running stream, he generally has numerous trees of the banana and plantain. Though these grow wild in the tropics, they are improved by cultivation. The wild bananas root close to the water's edge, and a freshet may carry the plants away. We have often seen a rude canoe slip by on some South American stream at early morning, carrying an old squaw, in a scarlet cotton gown, and a cart-wheel hat, with a roll of tobacco-leaf between her teeth, and two bunches of bananas for cargo (fig. 2). These bunches are all she has to sell, and she will travel twenty miles to dispose of them. The old woman is never without a naked

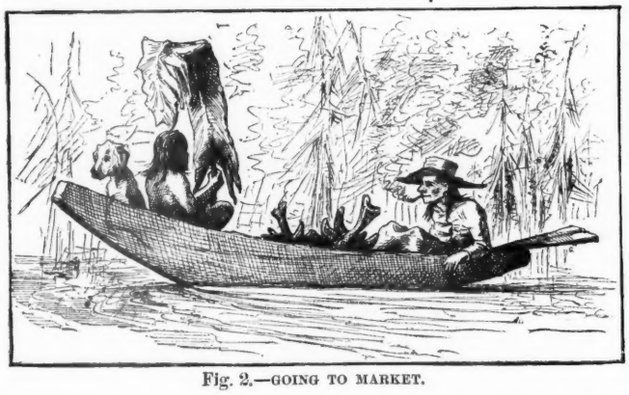


Fig. 2.—GOING TO MARKET.

boy and a lean dog for company, and when the tide is fair, the party float along, carried by the current, and propelled by the wind blowing on a big plantain leaf, which the boy holds upright, for a sail.

Farming to such people is simply a means to an end, and that end is a bare living. They eat what little they raise, and only go to market in order to obtain such necessities, as the little hardware or ammunition they use, or the scanty clothing they wear. If the tropical public had to depend on them for material subsistence, they would starve.

There are small farmers or market gardeners, who supply the market. Twice a week they appear in town with their products, the extent of which would make an American farmer smile. It may be a donkey-load of vegetables, or a basket of fruit, carried on the back or head. Its value never exceeds two dollars, and is often less than one. The heaviest loads seen in a tropical market, are those of green fodder—grass, freshly cut, and piled up on the back of a patient donkey (figs. 3 and 4). On the summit the owner lounges at ease, while his poor brute hobbles along, directed by blows of a long pole on his ears. Viewed from the rear, the aspect of the combination of man, beast, and grass is very curious indeed. Green fodder is in constant demand, as everyone, with any pretensions to gentility, keeps horses or saddle-mules.

Another curiosity of tropical farming is the yam. There are two species; the finer, which is a very fair substitute for potatoes, when it is mashed, is small and succulent; the coarser is large, stringy, and tasteless. The stranger, who sees these latter stacked up in a market place, invariably takes them for firewood (fig. 1), and they are often dry and fibrous enough to serve for burning.

Such products as the small farmers of the tropics raise, are all easily cultivated. Crops which require care, such as cocoa and coffee, are left to the

Fig. 3.—A LOAD OF HAY.

more enterprising and enlightened foreigner, with a sprinkling of the higher class natives. Even sugar cane is sparsely grown by the small farmer. The little he does raise, is for sweetening his water and coffee. He simply crushes the cane by a primitive method from time to time, as he requires it. The unclarified juice, which he calls *guarapo*, is his only substitute for sugar. Corn is raised to feed the horses and mules, and to bake into cakes. The grass-fodder is too light for a constant diet, and draught or pack animals have to be fed some corn daily, when at work. For baking, the corn is simply pounded in a hollow stone, mixed with water and salt, and cooked on a hot stone or iron plate, and usually rubbed with raw red pepper to flavor it.

No more picturesque or wretched picture can be conceived, than one of the little farms of South or Central America. A hut of palm boards, with a rotten roof of palm branches, swarming with bats, scorpions, and other vermin, constitutes the farmer's home (fig. 5). The floor is of earth, the beds are frameworks of boards, on which the inmates stretch without the effete formality of undressing. Hammocks are not as often seen as one would fancy. All travellers, however, carry them, and for a dime obtain the privilege of slinging them from the beams. Many farm houses are mere sheds, with the sides open to the winds. The

Fig. 4.—REAR OF LOAD.

farms themselves present none of the pleasing aspects of cultivated ground. The different crops grow in patches, it is true, but rank, unweeded, and without care. Nature provides a soil so rich, that man needs to give it but little labor, when, after years, the ground is worked out, the farmer opens another patch, for all is free.

Such a land as this would be a paradise for the intelligent and energetic Northern farmer, but for the fact that in this enervating and malarial climate hard labor is deadly. The white man, who settles here and works as he is accustomed to labor in the cooler climate at home, soon dies, and only he who adapts himself to the listless climate, survives.

Green Manures in the Garden.

In a properly managed garden the soil is kept constantly at work. If it is not producing a crop, it should not be left to grow up to weeds, but be sown to some crop that may be turned under and serve as a green manure. This will not only prevent a growth of weeds, but afford a mass of green material which, if turned under, will greatly increase the fertility of the soil. What shall it be? While buckwheat, clover and other plants are used as green manures for farm crops, we have yet much to learn as to the best green manure crops for the garden. The late Mr. W. N. White (author of "Gardening for the South") found that on soils already in fair condition, Lucern (Alfalfa) sowed broadcast, was the best plant for the purpose. Where the season devoted to the crop is short, probably mustard or rape would answer a good purpose. In the Southern States, whether for field or garden, the Cow-pea takes precedence of all other plants as a green manure. From our experience with this plant, we are sure that it is worthy of trial in Northern gardens. It requires a long season to ripen its seeds, but as a green manure

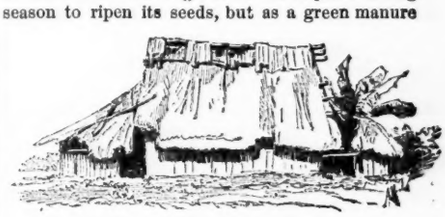


Fig. 5.—THE FARMER'S HOME.

the seeds are not needed, and it will produce, in Northern localities, an abundant crop of herbage, which analysis shows to be rich in fertilizing elements. Common field peas will afford a rich green manure. The gardener should make it his aim to occupy his land with something, if not with the best possible plants for green manure, then whatever will prevent the growth of a crop of weeds.

Twenty Years in Swine Husbandry.

BY JOSEPH HARRIS.

A dozen or twenty years ago the prevailing American hog was a coarse, ill-bred animal. I had just such hogs on my own farm—hogs that would race about all day and squeal all night—hogs that would catch a hen, eat a lamb, kill a sheep, and even maim a horse. I wanted to improve them. I wanted to stop their squealing. I wanted to give them less bone, less hair, and more flesh and fat. I have accomplished this object; I keep pigs by the hundred, but I rarely hear a squeal, and they are so quiet that a very slight fence will keep them in the pasture lots. With such pigs constantly in view, things which I thought very important twenty years ago, are now of little moment. The change which has taken place in the character of the hogs on my own farm, has taken place also on tens of thousands of farms in all the great hog-producing sections of the country. The improvement which has taken place in the breeding and management of pigs in the United States is something wonderful. Our cattle, sheep, and poultry are far superior to those of twenty years ago, but the improvement, as a whole, is by no means so marked as the improvement which has taken place in the character of our pigs. To-day there are no finer hogs in the world than can be found in the United States, and certainly in no other country can so many really good hogs be found.

It may be equally true that there are, perhaps, not over two or three countries in the world in which so many poor hogs can be found. Our good hogs are very good, and our bad hogs are very bad indeed. I may say without vanity that farmers who still raise bad hogs should select out the best formed, largest, quietest, healthiest, and most thrifty sows they can find on their own farm, or on the farms of their neighbors, and cross them with the best, quietest, most highly-refined thoroughbred boar they can purchase. The breed they select from is of comparatively little importance. The real point, I think, is to get a boar that is pure-bred, and which is distinguished for his quietness of disposition, either in himself or his ancestors, and also for his fineness of bone, fine hair, and little offal of all kinds. It may well be that the boar it is best to select is not by any means a model. He might not take a prize at any fair. He may be a small, insignificant pig, but if he is a pure-bred, and comes from a race of well-formed, pure-bred ancestors, you can use him with the greatest advantage. There is no doubt on this point. I have seen it tried again and again, and have never known a failure. Of course it is necessary to feed well. The best locomotive cannot be run at a high rate of speed without an abundant supply of fuel, and you cannot obtain rapid growth in a pig without a liberal and constant supply of food. Breeding and feeding must go together. Breeding without feeding will result in disappointment; feeding without breeding is a mere waste of food.

IMPROVING IMPROVED PIGS.

The improvement which has taken place in the character of an immense number of American hogs is something wonderful. There may be some difference of opinion as to how this remarkable improvement has been brought about. Some will say it is caused by the substitution of new breeds for the old ones. Others will say that, while this is true in some degree, the general improvement which has taken place in millions of American hogs, is owing to an infusion of thorough-bred blood. Whatever the cause, the fact of the improvement cannot be doubted. The character of our hogs on many farms and in many sections has essentially changed. How to improve these improved hogs is an important question. We shall make a great mistake if we assume that there is nothing more to be done. We can never stand still. Our hogs will get better or worse. And, unfortunately, we have very little experience to guide us. The experience we have to fall back upon is not always of an encouraging character. Going back to England, we find "improved" breeds in almost every county. They come and go without number. They are, and have been, essentially grades or cross-breds. I do not know of an English breed that was not originally the result of a cross.

SHALL WE CROSS OUR IMPROVED BREEDS?

Every American breeder will say no, and I believe the American breeders are right. They will say improve the breed by careful and judicious selection, and whatever you do, keep the breed scrupulously pure. No cross can be entertained for a moment. It is necessary, however, to have clear and definite ideas on this subject. We must know what we are talking about. We must know what we want, and why we want it. If we want pigs to take prizes at the Agricultural Fairs, that is one thing; if we want pigs, that are healthy, hardy, vigorous, and that are to some extent capable of taking care of themselves, and which at the same time will grow rapidly, fatten easily, and produce a large amount of ham, pork, breakfast bacon, and lard, in proportion to the food consumed, that is another thing; but if we want pigs principally for breeders, if our object is to raise boars to be used in improving the general swine stock of the country, that is another and very different object. It may be thought that we can keep pigs for each one and all of these different objects combined, and such is undoubtedly the case, but it remains to be shown whether this combined pig is now, or ever can be, as good a pig for these different purposes, as pigs would be which are carefully bred for each special object alone. I have for many years kept a large herd of pure-bred Essex pigs. I keep them mainly for breeding purposes, fattening and selling to the butcher only those that are not good enough, or are not required, for breeders. I am very certain that it would not pay me to keep pure-bred Essex pigs solely to fatten and sell to the butcher. It may be said that the breed is at fault, and that if I kept Yorkshires, or Berkshires, or Poland-Chinas, I should come to a different conclusion. Perhaps so, perhaps not. I am a little radical on this subject. I keep pure-bred Cotswold sheep, but I am sure, if I kept sheep solely for their mutton and wool, and not for the purpose of selling them for breeders, I would not keep pure-bred Cotswolds. I know that the grades are hardier, healthier, more vigorous, fatten easier, and are more profitable for wool and mutton than the pure-breds. How many farmers are there in England or America that keep pure-bred Shorthorns, or Herefords, or Devons, solely for milk and beef? How many keep pure-bred Jerseys or Ayrshires solely for butter and milk? It may be said that the animals cost too much to permit their being used for ordinary purposes. I doubt very much whether this is the true explanation. If a high-bred Duchess Shorthorn could be produced and raised as easily as a scrub, these choice animals would not be so scarce and high. The great value of the pure-bred male animal consists in the fact that, during his life, he may become the father of hundreds of animals which are vastly superior for man's use to the offspring of a common or cross-bred sire.

The Grape Vine in August.

While the grape vine has more enemies than almost any other fruit-bearing plant, they are, with the exception of the little understood "rot," easily managed if taken in time. Mildew is usually prevalent this month. If neglected, but little fruit can be hoped for. Mildew is easily kept in subjection, if sulphur be applied in time, as directed last month. If a rain falls soon after sulphur has been used, the application should be repeated. If the vines are kept well dusted with sulphur, the trouble will make but little headway. The insects that infest the vine at this season are mainly large and solitary caterpillars and beetles, destructive enough, but so scattered that hand-picking is the only remedy that can be applied. Where droppings are seen on the ground beneath the vines, search for the caterpillar that makes them. On old vines there will often appear vigorous shoots from the base, or at the root, and anywhere upon the old stem. These, as a general thing, are not needed, and should be removed as soon as noticed. If the laterals continue to push out, the new growth should be pinched back, leaving the lower leaf. Where vines, trained to a trellis, have been shortened, the uppermost bud will often start into growth. This should be treated like a lateral, pinching it back to the lower leaf, and repeating the operation as often as a new shoot starts. Those who grow grapes to compete for prizes at the various exhibitions, sometimes thin the berries in the clusters, in order that the remaining fruit may attain a larger size.

Second Year with the Old Virgalieu.

It is frequently a paying investment to renew the life of old, neglected fruit trees that have been left to go to moss, dead limbs, and barrenness. We had a striking proof of this in an old Virgalieu pear tree, which was full of dead limbs, and left to itself for years under the hand of a tenant expecting to go West or elsewhere every spring. The first season the land was plowed, planted with potatoes, and generously manured, the dead limbs removed, and some thinning done among the live ones. Fortunately, the trunk was sound. The result of the first year was a new start of vigorous shoots all over the tree, and a few pears. About a foot of new wood was made at the ends of the branches, with an abundant supply of fruit-buds. More stable manure was added during last winter and spring, and another crop of potatoes put in, which have been frequently cultivated and kept clear of weeds. There was an abundant show of blossoms, and the fruit set well. At the middle of June, the growth of wood was more than that made during the whole of last season. The foliage is healthy, and a good crop of pears is assured.

Apples for a Near Market.

Several have written us that they propose to plant orchards for profit, their market being New York City, and ask what will be the best varieties. To those who propose to plant orchards near any large city, we advise the early varieties of apples. With the late sorts, the cheaper lands of some of the Western States can produce handsomer specimens than they can hope for, and the competition is unequal. The early varieties are too tender to allow of long transportation, and, if showy varieties are selected, they, as a rule, bring much better prices than the late kinds; they can be marketed at once, and bring immediate returns. In nearly all neighborhoods in the older States, there are local varieties, seedlings, no doubt, which have not yet been recorded in the catalogues. These are often of excellent quality, and if showy and of known market value, should not be overlooked. In selecting early apples, it is important to regard appearance, as such fruit is judged by the eye. A friend told us, a few years ago, that two trees of the "Summer Queen" were the most profitable of any in a large orchard. It is later than some others, but its large size and showy character, it being handsomely striped and shaded with red, caused it to bring the highest price. Another very showy fruit — and one of the most attractive — is the "Duchess of Oldenburg." It ranks, perhaps, as an early autumn, rather than as a summer fruit, but is so hardy, productive, and handsome, that it should not be omitted. Among other excellent early sorts are: "William's Favorite," a handsome red fruit; "Tetofsky," a Russian apple, now becoming very popular; "Red Astrachan," a beautiful red, but sour apple, and perhaps more generally planted than any other; "Carolina Red June" is similar in color. "Early Harvest," "High-top Sweet," "Large Yellow Bough," and "Summer Pippin," are among the best of the yellow or green apples. We have given a sufficiently large selection for a market orchard. If one wishes choice fruit for home use, he can find nothing better than the "Primate," "Early Strawberry," "Summer Rose," and "Summer Sweet Paradise," but save the second named, they are not so desirable for

orchard culture. Selecting early apples, and packing them carefully in new half-barrels, lined with white paper, or in suitable crates, will greatly increase the market returns for this kind of fruit.

Live Stock Exhibitions.

During the coming three months, there will be continual exhibitions of our domestic animals at the numerous Fairs and Shows over the whole country. In order to judge fairly as to the merits of these, it is highly important that they should be exhibited in proper condition—that is, neither being too fat nor too lean. As fat hides many bad points of animals, they are very frequently exhibited by owners in a superabundant state of grossness, in order to cover faults, and blind the eyes of the examining judges. Here a distinction should be made in accordance with the different breeds of animals, and the purposes for which they are kept. The Jersey, Guernsey, Ayrshire, and Dutch (Holstein and Friesian) cows surpass in the dairy; these, then, should be judged mainly as to their merits in yielding an extra large quantity of milk or butter for the food consumed, while a harmonious form and fine points, though desirable to accompany these extra yields, should be a secondary consideration. As the Shorthorn cow is a general purpose animal, its form and disposition to take on an excellent quality of flesh when dried off for fattening, should be equally considered with its dairy qualities; and the same is required of any other breed for which a general purpose is claimed, as is the case with the Devon, although a much smaller animal than the Shorthorn.

As to the beef breeds, like the Hereford, Black Polled Scotch, Kyloe, and any others, perfection of form, aptitude to fatten economically, and turn out first quality meat, are alone to be kept in view. In preparing beasts exclusively for the Fat Stock Show, particular regard must be had to their condition. No butcher wants them overloaded with fat, for such are unfit for consumption, and a good judge of meat will never purchase pieces cut from the carcass of these. He does not wish to buy tallow, but tender, well-marbled, lean, juicy meat. This alone is required, and the animals which best furnish it are now given the first prizes at Chicago and other places in the United States, when fat cattle are exhibited. They must be judged twice: first, when alive, as to form, condition, etc.; and second, after slaughter, as to the quality of their meat. We regret to say that these rules were not followed in England at the great Fat Cattle Show at Birmingham, in December, or at the still larger and more important Christmas Show in London. But the principles of the American Shows are now studied to some extent by the managers of those in England, and the agricultural press there is heartily recommending that they should be adopted throughout the United Kingdom. Until this is done, no satisfactory progress can be made on the part of breeders and feeders in supplying an economical and savory quality of meat for the market, whether it be flesh of beeves, sheep, or swine. Of the latter, however, two sorts of flesh are required: such as is almost entirely fat for salting and barreling, and that which is tender, juicy, and lean, for smoked hams, shoulders, and bacon.

Spare the Toads.

There is no better abused, and probably no more useful creature in the garden and upon the farm than the toad. That apt simile, "like a toad under a harrow," tells the story of his wrongs. And now that our harrows are armed with steel teeth, and are supplemented with clod crushers and cultivators of various types for comminuting the soil, the sorrows of the toad are intensified, and he is threatened with extinction in all cultivated fields. Stay thy hand from slaughter, tiller of the soil. The toad is as useful in his place as the implements of tillage you drive over his back so thoughtlessly. "The jewel in his head" is not there, but in his capacious stomach, that always has room in it for one more bug, one more worm, that destroys the food of man. Watch his habits for a day, and observe the lightning thrusts of his tongue as he scoops in your enemies, and you will have a better appreciation of his work, and of his place in good husbandry. If your garden is without toads, you can afford to purchase them for stock. They will pay good dividends, as surely as superphosphate.

Diseased Cabbage Stems and Roots.

The cabbage is a most unfortunate plant with respect to its insect enemies. Some attack the seedlings as soon as they are out of the ground; several others devour the leaves, and the stem and roots have insects which infest those parts; indeed, over a dozen different species are known to live upon the cabbage. In some localities, the roots swell up and become "club-footed" to such an extent that they cease to nourish the plants, and they fail,—are really starved to death. A friend sent us some young, partly grown cabbages, the roots of which were in a very bad condition, as shown by the portrait of one, of real size, given in figure 1. It will be seen that when, instead of fine fibres, for taking up food, the roots are swollen and distorted in this manner, there can be no hope for the plant. When the stem was cut through lengthwise, it appeared as in figure 2, which is somewhat enlarged. The interior of the stem was alive with numerous maggots, which had partly hollowed it to a mere shell. The presence of them was sufficient to account for the diseased root, and the death of the plant, which appeared to be close at hand. These maggots were, apparently, those of the "Cabbage-Fly" of Europe (*Anthomyia brassicæ*). When full-grown, they are about a third of an inch long; they then leave the plant, and turn to pupæ in the soil, from which, in two or three weeks, the perfect insect comes forth. This is a two-winged fly, of a gray color, with a spread of wings of about half an inch. Several broods are produced during the season, the pupæ of the latest remaining dormant in the ground all winter. The flies come out the next season in time for the early cabbages. While this pest does not appear to be general, it is, in some localities, sufficiently abundant to cause serious loss. Lime has been found to be the best remedy proposed thus far. In England, it is applied in the form of lime-water, and on the continent, the use of superphosphate as a manure has been found to be a preventive. The best means of getting rid of this pest, is by a proper rotation of crops. While cabbages may be grown year after year on soil well supplied with lime, the proper practice on other soils is a judicious rotation.

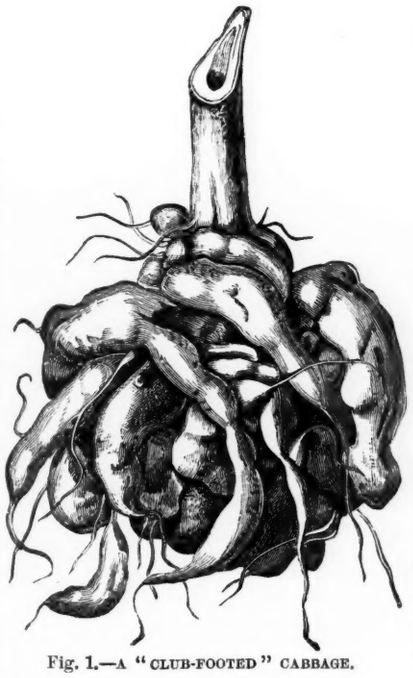


Fig. 1.—A "CLUB-FOOTED" CABBAGE.

Fig. 2.—MAGGOTS IN CABBAGE STEM.

Worms in a Lawn.

J. H. Tompkins, Ohio, is much annoyed by earth or angle worms in his lawn. The soil is a sandy clay, lies high, and has been heavily manured. He writes us that the worms, "as large as little snakes," are ruining the grass. That worms are, on the whole, useful, is strongly advocated by some, but if there is a place where their labors in bringing up fertilizing matters from below, can be dispensed with, it is on a well-made lawn. Whatever good they may do to the lawn, their casts are a nuisance. In England, where worms are much more abundant than with us, the worm casts are scattered by sweeping. One English horticultural writer advises the use of salt, at the rate of eight bushels to the acre, to destroy worms, stating that a less quantity will do no good, while a bushel or two more will do no harm. If we wished to destroy worms in a lawn, we should use lime-water. We do not know what the effect of such a heavy dressing of salt, as that just mentioned, might be in our climate, but having used lime-water on the most delicate plants in the greenhouse, should not hesitate to apply it to the lawn to destroy worms. By lime-water, we refer to a saturated and perfectly clear solution of lime (see page 324, last month). Lime-water is most readily made by placing ten or twelve pounds of quick-lime in a barrel, slaking it with hot water, and then adding water to fill the barrel; stir thoroughly, and allow the sediment to settle. The liquid, perfectly clear when applied to the lawn, will soon put an end to the worms.

Broad-Cast and Drilled Seeding of Crops.

Professor Roberts, of the Cornell University Experimental Station, found the average of two years of broad-cast sowing of oats to be 61 bushels per acre, while equal areas drilled gave 56 bushels. He also obtained the largest yield with about three bushels of seed per acre. The summary of seven years of experimentation with wheat, shows that the drilled plots gave a larger average yield than the areas sown broadcast. Three bushels of seed per acre gave a better crop than a greater or less amount. Professor Roberts finds that there is a noticeable variation from year to year in the per cent. of seed that germinates, and the amount destroyed by insects and other causes. Thin seeding frequently does well, until the freezing and thawing of early spring, when it suffers more than thick seeding. If the weather of late spring is not favorable, the thin seeding does not tiller as it should, or tillers so late, that there is a large number of small heads on short stalks, in the standing grain. One bushel of good seed would be ample for an acre, if all the conditions were most favorable; but they seldom are, and it is wiser to give a liberal sowing of the grain, than to run the risk for the advantages of a thin seeding.

The extended experiments with various commercial manures warrant two conclusions: First, concentrated fertilizers, under some conditions of the soil, when applied liberally in contact with the seed, may do as much harm as good. Second, nitrogen, when applied in the form of dried blood, is much more effective than when furnished to the soil in nitrate of soda or sulphate of ammonia.

Wise Legislation.—The French Government has passed a law that hereafter all owners of stallions for service must produce a certificate showing that the animal is free from disease and unsoundness of all kinds. It is a pity that our Government does not enact a similar law. If it did, and strictly enforced it, the horse stock of the United States would be increased in value at least 25 per cent. To this, if good action, endurance, and a mild temper were added, it would make the future stock still more valuable. Over ten million horses were reported in the census of 1880, and we presume there may be nearly twelve millions now, for they have increased with unexampled rapidity during the past three years.

The Japanese Bladder-Nut.—A few years ago, we gave an engraving of *Staphylea Bumaldi*, for which "Japanese Bladder-nut" will answer as a common name. Our native "Bladder-nut" (*S. trifolia*) is not rare in moist places in the Northern States. It is showy in both flower and fruit, and is well worth growing, though rarely seen in cultivation. The Japanese species is vastly superior. The engraving referred to was from specimens sent by a correspondent. Having since flowered it, we find the blooms much finer and more profuse than those sent us. Every twig is terminated by a large cluster of flowers of the purest white, each a bouquet of itself. We can commend the Japanese Bladder-nut to lovers of fine shrubs, as one of the best of recent introductions.

A Great Importation of Quails.—Steamers from Alexandria and Messina have carried to the port of Marseilles from twenty thousand to thirty thousand quails each. Quails abound in vast numbers in the neighborhood of the first two ports. They are caught in nets, conveyed in shallow, well-ventilated boxes, supplied with plenty of food on the voyage, and thus reach their destination in good condition. These importations begin before or at least early in February, and continue into May, if not longer. During this time hundreds of thousands are brought over from Egypt and Sicily. After April, their consumption is forbidden in France, and the quails are then sent mostly from Marseilles to England. There is no necessity, then, of sportsmen there to supply the markets, even if the shooting season were not already long since over.

The Decorations for the Fair.—Most of the Fair grounds of the County Associations have a building devoted to the display of flowers and fruits, usually called "Floral Hall." This is often, at the time of the Fair, a rather barren place. Those who take an interest in the exhibition should provide for its decoration. If they have any showy plants that can be spared, such as Cannas, Castor Oil plants, or other decorative specimens, let them prepare these well in advance for the Fair. Nail kegs, or half-barrels cut down to the proper size, will answer for "pots." Carefully take up the plants and place them in these, giving a supply of good soil. Keep the plants in the shade until they recover from the shock of removal, and then promote their growth by applications of weak manure water. The plants must be set where violent winds will not injure them. A few large specimens, distributed about the hall, will go far to relieve its barren appearance.

Rose-bugs on the Grape Vines.—A correspondent writes us that the Rose-bugs are doing injury to his grape vines. They first attacked them three years ago in large swarms, but were picked off almost daily until the season was over, thus preventing them from dropping to the ground to pass the winter. Picking by hand is the only sure remedy. Each picker carries a tin can containing some water, and drops the beetles into it. Afterwards pour off the water, and empty the insects into the fire. It is not well for poultry to eat the bugs, as they sometimes cause sickness. Our correspondent's leading complaint is, that his neighbors do not pick the bugs, and he cannot therefore hope to get entirely clear of the pest. Concerted action is needed in this, as in all other cases of insect trouble.

Shelter for Stock.—Live stock writers are strenuous in advising comfortable shelter from frost, cold, and fierce winds during the inclement season, all of which is highly necessary and very proper. Few, however, have anything to say in regard to that of the hot season, in protecting their animals from the extreme heat of the sun and tormenting insects. When these were most prevalent, it has been our rule to keep as many of our animals as possible in cool, darkened stables, from nine to ten o'clock in the morning until five to six o'clock in the evening. The rest of the day, and through the night, we let them remain at pasture. In this way they need soiling only at noon, and get plenty of exercise and feed during the other part of the twenty-four hours. This is specially advantageous to the growth of calves, and indeed of colts also. We do not permit our calves to run with the cows here at the East, as we know is unavoidable at the great West, and we do not think it advisable for the colt to run during the whole day with the mare. If nursed at morning, and again at noon, it may then rest until towards evening. H. H.

Spring Grove Cemetery.—Adolph Strauch.—Spring Grove Cemetery, at Cincinnati, is probably the most beautiful of the many garden cemeteries of the country. This, if we mistake not, was the first cemetery in which all visible boundaries to individual lots were abolished; the whole was laid out according to a general plan, which was not marred by the intrusion of fences, hedges, and other fancies of lot-owners. The beauty of Spring Grove is due to the designing and subsequent superintendence of Mr. Adolph Strauch. A visit to this cemetery under the guidance of its designer and architect, who pointed out beauties that might have been passed unnoticed, and gave reasons for every departure from usual methods, remains as a delightful remembrance. At last, he who prepared this lovely resting-place for so many, has been himself laid away. His influence has been felt all over the country.

Importation of Meat Instead of Living Animals.—We are pleased to see the subject of meat importation from America fully discussed, in accordance with its importance, in the British agricultural journals. The objection to the importation of live cattle is two-fold. The first is, that for many years past they have carried disease to the native stock, causing a loss of millions of pounds sterling to the farmers, and also considerably increasing the price of meat to consumers. The second is, that cruel suffering is often endured by the poor dumb beasts in their importation. Dead meat, packed in improved refrigerators, can be transported thousands of miles, and will improve, rather than deteriorate, in quality. There is the additional advantage of being able to hold it for sale, if the market happens to be a little glutted on arrival, until a good price can be obtained. Cattle must be sold at once, or go into an expensive quarantine; and they often arrive in such poor condition, as to require weeks or even months to bring them around fit for slaughter.

Temperature of Woodlands and Open Fields.—Professor Prentiss, after a prolonged series of tri-daily observations with thermometers, finds that the temperature of a wooded belt is somewhat higher than that of an open field, that the fluctuations are less rapid and extreme, and that gradual changes in the temperature of the field are not felt in the woods until a day or two later. The apparent difference between the temperature of the woods and that of open fields is always far greater than the real difference. By means of thermometers, inserted in holes bored into the hearts of trees, it was found that the average temperature of the interior of a pine tree is one or two degrees higher than that of an oak. During the winter season, the thermometers will register twenty-five degrees below zero at the center of large trees. This fact does not strengthen the opinion of some scientists, that trees and shrubs are killed if the sap in the living cells becomes frozen. The low temperatures recorded do not prove that the vital liquid is congealed, but they throw additional doubt on an already very doubtful theory.

Ivy Poisoning.—The "Poison Ivy," also called "Poison Oak," and in some localities known as "Marcury," is often the cause of great distress. The vine is abundant all over the country, one form being low, running along on banks and rambling over stone walls. Another form climbs the highest trees, clinging to the bark by its many rootlets. It is often confounded with the Virginia Creeper; indeed, we have known it to be planted as an ornamental vine, it having been mistaken for that. The two are readily told apart, the Virginia Creeper having its dark-green, shiny leaves five-parted, while the light-green leaves of the poison vine are three-parted. The Poison Ivy is so very abundant, that were all equally susceptible to its influence, we should hear much more of its effects than we do at present. With many, the poison produces only a slight eruption on the skin and an intense itching. Others are more seriously affected, and the face swells up to such an extent that the features are hardly visible. Nearly every locality has its popular remedies for the poison, and new ones are frequently proposed. As a general thing, most cases are relieved by keeping the bowels open by the use of salts, and washing the eruptions with a strong solution of sugar of lead. The latest remedy, which is now going the rounds, is to bathe the affected parts with lime water, applied as hot as it can be borne. This is simple, the remedy is usually at hand, and is worth trying, as other alkaline washes have been found useful. No harm can result.

The Black Walnut in the South.—"S. D. S.," Evergreen, Ala., wishes to grow the black walnut for timber. He has a hill-side that has never been in cultivation, with clay about twelve inches below the surface. If the foot above the clay is good soil, there is little doubt that the trees would flourish. Our correspondent should make arrangements to procure the nuts before they come dry. He mentions the natural growth of his land. It will be necessary to clear off this before he plants his walnuts. He can not hope to successfully grow the walnut while the land is already occupied. The usual method is to plant the nuts in rows, eight feet apart, placing two or three nuts every eight feet in the row, afterwards removing all the seedlings but one. As young walnut trees are disposed to branch near the ground, nurse trees are used, in order to make the walnuts grow up and form tall timber. Silver maples and white willow (from cuttings) have been used as nurse trees. The object of these is to induce an upward growth of the walnut, and they are to be removed as soon as they have answered their purpose. If our correspondent has cleared land, that has been in cultivation, he probably will meet with better success than to undertake to grow the black walnut on wild land.

In the Hay and Harvest Field.—People drink too copiously of ice-cold water, and every summer the list of deaths from this cause is a long one. Excessive drinking of ice-cold water becomes as much of a habit as some other forms of drinking. If ice-cold water be used to reduce the temperature of ordinary well-water, "half-and-half," it will be found to quench thirst quite as readily as when taken into the stomach at the melting point of ice (32°), and there will be no danger of sunstroke and "sudden prostration in the hay field." Still better than ice-water is some prepared drink, to be taken in moderate quantities. Nothing is better for those who work in the hay and harvest field than the old-fashioned "Switchell." This is water, sweetened with molasses, to which are added vinegar and ground ginger. We do not know of any definite proportions, as the ingredients are usually mixed "according to taste." It is a most refreshing draught, and if cooled by adding a moderate quantity of ice, the ginger prevents any unpleasant effects. Another capital drink for workmen in the field is "Tea Punch." Make strong tea, sweeten it, and then squeeze into it the juice of one or more lemons. This may also be cooled by adding ice in moderate quantities, and those who like tea at all, will prefer it to any other harvest drink. Strong coffee, with sugar and milk, placed on ice until well cooled, is another excellent drink for the field.

The Back Stoop.—Bootjacks.—On many farms the "hired men" eat at the family table. These men often come in from the field in such a condition, that they need to prepare themselves to take a seat at the table. This is usually done on the back stoop, where there should be abundant water, a sufficient supply of towels, combs, and whatever else may be needed. So far as we have noticed hired men, they are quite desirous of making themselves presentable, and will gladly avail themselves of every opportunity for doing so. It will pay the farmer, if he has a regard for his wife, to provide a lot of cheap slippers, which his hired men can use when they come into the house. He should also provide a bootjack, by means of which the boots that have been worn in the field may be removed. Perhaps there is no simple affair upon which

more inventive talent has been expended than on the bootjack. After all, the common old-fashioned form shown in the engraving is as useful as any. This is one of those appliances that the farmer or his boys can make in the workshops in winter. The back stoop should be provided with a bench. Whisk-brooms will prevent the introduction of dust into the house, and if provided, will generally be used. If the farmer himself does not come to the table in his shirt-sleeves, he will soon find that his hired men will contrive to properly attire themselves for the meals.

The Liver-Fluke and Prevention of the Rot in Sheep.

The liver-rot, fluke, or "bane" has been known among sheep, and its ravages dreaded, from early times. There have been many theories as to the nature of the

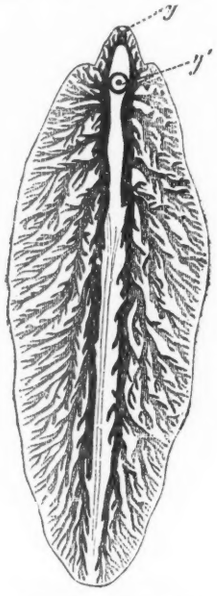


Fig. 1.—THE MATURE FLUKE.

fatal disease; but of late years it has been shown that it is due to a parasitic animal which inhabits the bile ducts of the sheep's liver. For the last two years researches into the natural history of the pest have been carried on by Prof. A. P. Thomas on behalf of the Royal Agricultural Society of England, and the completed investigations are given in Part I. of the Journal of the Society for the present year. From this we condense the more important facts discovered and reproduce most of the engravings herewith given.

The fluke, fig. 1, is a sucking worm somewhat resembling the common leech, of a flat, oval shape, pale brown or flesh-colored, and an inch to an inch and a third in length. Near the head is a sucker, *y*, by means of which the fluke attaches itself to the surface of the infested part. The mature fluke produces a large number of eggs, which are 1-200th of an inch in length. In one case observed, 7,000,000 eggs were obtained from the gall-bladder of a single diseased sheep. Figure 2 shows the fluke's egg, much magnified, as it comes from the sheep's liver. It is an oval body, with a transparent shell, which allows the rounded masses of the contents being seen. The eggs are carried with the bile into the intestine, and at length are voided with the droppings of the animal. If they fall upon wet ground, or are washed by rains into pools or streams, other changes occur. With the temperature at 75° to 80°, an *embryo* forms in about two weeks. Figure 3 shows an egg with the embryo fully formed, and fig. 4 represents the same when hatched, both highly magnified. The broader end is directed forward in swimming, and in its centre is a peg-like projection which is used as a boring tool. When the embryo meets with any object, it feels

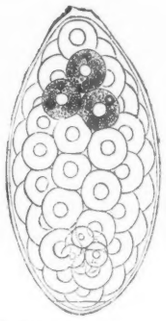


Fig. 2.—THE FLUKE EGG.

Fig. 3.—EGG WITH EMBRYO.

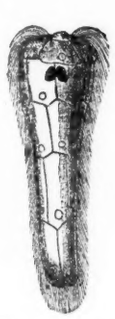


Fig. 4.—THE EMBRYO.

Fig. 5.—SNAIL ENLARGED.

about, and if not satisfied, darts off; but if the surface met is that of a certain kind of snail—*Limnæus truncatulus* (fig. 5), it begins at once to bore into it. The young fluke spins around on itself like the handle of a cork-screw, by means of the many hair-like paddles, covering its surface. The objective point is the snail's lung, in which the embryo fluke soon develops farther at the expense of the juices of the host. The form of the body of the embryo soon changes to an oval shape, shown in fig. 6. This is distinguished as the first generation in the snail, and is termed the *sporocyst*, which means a bag of germs. These sporocysts grow rapidly, and develop offspring which are the second generation, and are called *redia*. Figure 7 shows a magnified mature sporocyst, containing a number of redia. The largest one at the lower end is well developed, and will soon force its way through the walls of the parent—the wound healing up and the remaining germs continuing to grow. The redia are more active than the sporocysts and migrate from the lung to other organs of the snail. A full grown redia is shown in fig. 8; it has a mouth and an intestine, and produces the third generation. The offspring of the redia are tadpole-shaped, and called the *cercariæ*. It is this third generation of the snail parasite that is destined to enter the sheep and produce the liver fluke. The cercariæ, one of which is shown in fig. 9, leave the snails, swim around for a time, and then become attached to and encysted upon grass stalks. These cysts remain dormant until picked up and swallowed by sheep feeding on the grass. The number of cercariæ descended from a single fluke egg is not less than two hundred, and under the most favorable conditions, over a thousand. A single live fluke may, through the medium of the alternation of generations above described, give rise to more than a hundred million descendants within a single season.

About six weeks elapse, from the swallowing of the tadpole animal, before the fluke becomes adult, and begins to produce eggs in the liver of the diseased sheep. It is seen that the fluke alternates between a particular snail and the sheep. The latter voids the eggs, and the developed embryos enter the snails, which, in turn, harbor them through three distinct forms, the last attaching itself to herbage, conveys the infection to the sheep.

Now that the life-history of the parasite is known, the conditions for its existence may be understood. Prof. Thomas' summary is condensed as follows: For the production of liver-rot in sheep, there must be—1. Fluke eggs on the ground; 2. Wet ground or water during warm weather; 3. The Snail, *Limnæus truncatulus;* 4. Sheep to feed on the ground infested by the fluke.

The eggs may be introduced in manure, in earth adhering to the feet of animals, or by running water, especially floods. Rabbits and hares are often infested with liver fluke, and may be a means of introducing it. The production of eggs is prevented by killing all sheep suffering from the disease. There is no cure for the fluke, as it inhabits an organ not easily reached by drugs. Sheep that are badly infested soon fall away in condition; the eyes lose their brightness, and become tallowy; the skin grows moist, and the wool loosens. As the disease advances, dropsy sets in, and soon after this, the animal dies in a state of rottenness. Sheep may live and thrive when only slightly infested with the

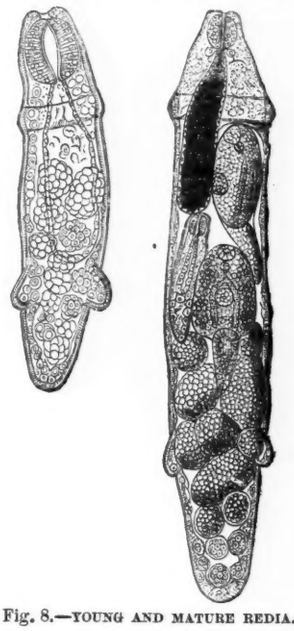


Fig. 8.—YOUNG AND MATURE REDIA.

fluke, if well fed and otherwise cared for; but the shepherd should be on his watch for the disease. If there is reason to think a flock is attacked, one of the most suspicious should be killed, and its liver examined for the flukes. If "rotted" sheep are kept, let them run only on dry ground, that the eggs voided may not meet with the water necessary for their development. The manure from fluked animals should not be placed on wet ground, and the livers of all infested sheep ought to be destroyed or deeply buried. The obvious remedy for wet land is thorough drainage. When not practicable to drain, salt or lime may be scattered on the surface, as these substances destroy the embryos, the cysts of the fluke, and also the host snails. Sheep feeding upon salt marshes are free from the disease. They should not be allowed to graze closely, as the majority of the cysts are near the roots of the grass. Salt is a preventive when given to sheep, acting injuriously upon the swallowed fluke germs, and improving the general health of the animals. Dry food is much better than green for infested sheep.

The annual loss of sheep from liver-rot in the United Kingdom is not less than 1,000,000 head, and an equal number die annually from the same cause in Central Europe. The "rot" occurs in most parts of the world. It is found in both our native and imported flocks, and many thousands of our sheep die every year without the owners having any knowledge of the cause.

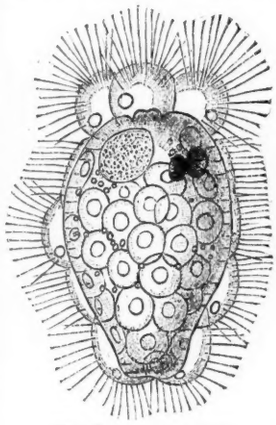


Fig. 6.—A SPOROCYST.

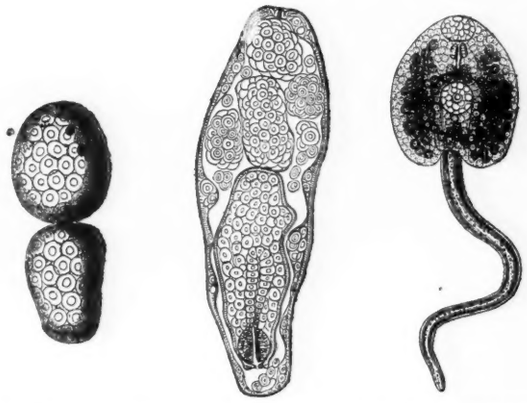


Fig. 7.—A MATURE AND DIVIDING SPOROCYST. Fig. 9.—A CERCARIA.

A White Farm.—A property belonging to Lady Abingdon, of England, is thus called, in consequence of her eccentric fancy to have every animal on it of a white color. Horses, cows, sheep, swine, dogs,

cats, rabbits, geese, fowls, pigeons, etc. To complete these, the Prince of Wales has sent her ladyship some white rats and mice. All the farm servants have light hair, and we suppose they are dressed in white clothing. We do not hear whether carriages, wagons, carts, plows, and other implements are painted white, but to be consistent, they ought to be, as well as all the buildings and fences outside and furniture within. The great White Jackass in Spain is as precious as a Barb horse of the purest blood. We wonder Lady Abingdon does not add one of these to her domestic stock of animals.

Blackberry Wine—Syrup—Root.

A correspondent in a Southern State has great faith in the efficacy of blackberry wine, and begs us, as the fruit ripens very early with him, to send a recipe by mail, as one in the paper will reach him too late. The juice of the blackberry has a small amount of astringency, and whether the fruit itself be eaten, or its juice converted into wine or syrup, its effect, if any, will no doubt be favorable in bowel complaints. The astringency, which is not sufficient to be disagreeable to the taste, is altogether too slight to be of much value medicinally. The reputation of the blackberry as a remedy in various bowel complaints, depends upon the astringent properties of the root. The "Blackberry-tea," so much used in domestic practice in various parts of the country, is made not from the berries, but from the root. The root is not only employed as a family remedy, but our most skilled physicians find that, in chronic cases, it is most useful, and agrees with the stomach when other medicines will not be retained. We have known obstinate cases of the "army diarrhœa" to yield to this simple remedy when other medicines had failed. Those who wish to avail themselves of the remedial properties of the blackberry, should make use of the root. It does not appear that there is any perceptible difference in the roots of the several species; those of the running and bush forms of the blackberry have the same properties. As one or more species is to be found in every part of the country, a useful and inexpensive remedy is everywhere at hand. The usual method of preparing it is to add an ounce of root to a pint and a half of water, and simmer slowly until reduced to a pint, and strain. The dose of this tea for an adult is a wineglassful; for a child, one to three teaspoonfuls. While it is preparing, bits of orange-peel may be added, to give a pleasant flavor. This tea was much used by the surgeons of both armies in the late war with great success, and it is now much employed by physicians. If desired, a syrup of the root may be prepared, to be kept at hand for use. Four ounces of blackberry root and one drachm each of cinnamon, cloves, and nutmeg, are gently simmered for an hour in a quart of water. The liquid is then strained off, and two pounds of sugar added. When cold, add a wineglassful of brandy, and bottle for use. The dose for a child is a teaspoonful, and for an adult a tablespoonful. As to blackberry wine, the usual process for other fruit juices may be followed. To a gallon of the berries, well bruised, add a quart of boiling water. Allow these to stand for twenty-four hours, stirring occasionally. Then strain and press out the juice, and add two pounds of sugar to each gallon. Place the liquid in a jug to ferment. The jug must be kept full by adding from time to time some of the juice kept for the purpose. When fermentation ceases, cork the jug, and keep in a cool place three or four months, after which the wine may be bottled, carefully pouring it off from the sediment. Of course, larger quantities may be made with the same proportions, in a cask.

Pure Water for Hogs.

The swine plague was alarmingly frequent a quarter of a century ago, though fifty years ago it was unknown. At present it prevails among unimproved swine, and is a great drawback to profitable swine raising. Foul water is the most potent cause in the development of the disease, which may be largely prevented by providing pure water. The hog is the only farm animal which will readily drink impure water; before doing this, cattle, sheep, and especially horses, will suffer great thirst. A hog is frequently indifferent to the quality of his drink, and this is largely, if not altogether, a matter of bad education. Supply a hog with pure water, and it will soon despise that which is foul.

Swine are subject to the same laws that govern the health of other animals. Vegetable and animal matters, in a decaying state, when introduced into the system, are detrimental to health. Such matters are readily introduced with water, being taken directly into the stomach, soon pass to the intestines, etc., and become a source of disease. Experience and observation have convinced us that a large per cent of swine disease is produced by the disease germs being carried into the stomach in foul water. It is now believed that this, and many other diseases, are due to minute organisms, so low in the scale of organic life, that it is difficult to say whether they are vegetable or animal; they are known by the general name of "disease germs." The vitality of these germs is not great, except when preserved, as it is in water containing organic substances. In the water of pools, ditches, and ponds, their vitality is preserved for some time. If hogs are forced to drink such water, they take into their bodies the seeds of disease.

In many parts of the Eastern States, the brooks and creeks are fed by springs, and consequently their water is pure, cold, and wholesome. They will afford good water for hogs or any other animal. But over a larger area, particularly in the West, the creeks are not fed by springs, but formed of surface water. After rains, the waters rush along, laden with a sediment, consisting in part of decaying vegetable and animal matters. They soon recede into slimy, stagnant pools, rich in malaria and pregnant with disease. In such localities, the swine raiser must wholly depend upon wells. In some cases, well water may be as unwholesome as that from ponds and sluggish creeks. To be reasonably pure, the well must be fed by a spring or subterranean stream, and should be banked up well with clay around the curb, so that no surface water can enter.

In August, hogs suffer the most from unwholesome water. During this month they require much water, and it is more essential that it be pure than during any other time of the year. The sun is hot, the air dry, the earth parched; the hog has a compact body, formed largely of fat, small lungs imbedded in masses of flesh and fat, and with its nostrils near the ground. It inhales dust, which in part consists of decaying vegetables. Everything conspires to produce a feverish state of the body, and a great thirst, to be allayed only by large quantities of cold water. But water from creeks, ponds, and the like, are at this season the most heated. The greatest fatality among swine is in September and October. As the period from the inception of the disease to its fatal termination is from thirty to forty days, it would appear that the disease germs are most often taken into the body of the animal in August.

Shall we Prune in Autumn?

To the above question, which comes from several subscribers, we say decidedly, yes, provided the question applies to newly planted trees, those set last spring, or within a few years. The sooner such trees have their final shape given to them, the better. This should have been done when they were planted, but between the hurry of spring work and the timidity of the inexperienced, who are afraid to cut, trees are quite too often set out just as they come from the nursery. Such trees must sooner or later be put into their final shape for bearing, and the sooner this is done, the better. Some books on fruit culture, the French especially, give diagrams to show how the tree should be shaped. These are well enough as suggestions, but as no two trees grow precisely alike, the only guides in such matters are, a general idea of the laws which regulate tree growth, and common sense in their application. Working to pattern can not be followed. If one has a young orchard, the first point to be considered is the hight at which he will make the heads of his trees. In localities where the summer is long and hot, it is claimed that low heads shade the trunk, and thus are a benefit. Others wish to have the heads high enough to allow of the passage of teams beneath them, if need be. While there is no objection to cultivating crops in a young orchard, and indeed it is better to do this than to neglect the soil entirely, the practice is becoming more general of seeding the bearing orchard to clover, and using it as a pasture for swine, to the mutual benefit of pigs and trees. The hight of the heads being decided upon, all branches that start below this should be removed. The next point should be, to secure an open and well-balanced head, with the main branches evenly disposed. Beyond this, all branches that crowd, or cross one another, all "water shoots," vigorous growths, that sometimes start up in the growing season, should becut away. The season's growth being completed, the removal of branches at this time will cause no check, and as the branches to be cut away are all small, no large wounds will be exposed. Hence we say, by all means do such pruning in autumn, while the weather is mild, and other farm work is not pressing.

Improvement of Jersey Cattle on their Island Home.

We are pleased to be informed that a few at least of the breeders on the Island of Jersey, have determined to improve their cattle in a common sense way. Led off by a foolish fancy, dictated to them by foreigners, they have been half ruining their cattle for years past, by paying too much attention to worthless fancy points, instead of to that which is most important, namely, the largest economical production of butter for the amount of food consumed. A plan of this improvement is sketched by W. Philip le Brocq, of Jersey. He says: "Every endeavor is now on foot to secure an authentic butter record of some of our best dairy cows. Printed forms of butter records are being delivered by the committee to the members of the Association, which will need to be signed before a magistrate of our royal court, as a guarantee of their accuracy, before they are accepted by the Society. They will then be entered in a record book, with the original, and copies will be sent direct from the Association on application. Any intending purchaser visiting the Island, will receive all the assistance he needs from the Society." The above strikes us as being a better plan for adoption in the United States, than any we have yet seen proposed here. It would require only a little additional labor, and a trifling extra expense to the Jersey breeder, to keep a record of the production of one, or more, of his cows, take this to the nearest justice of the peace, or judge of a court, make oath to it, and then forward the same to the Secretary of the American Jersey Society, to be entered in a separate book kept by him especially for this purpose. This book should be held open for the free inspection at all times of any member of the Society, and the records should be published monthly, to be furnished to all applicants, by their paying a moderate annual subscription for the same. Some may fear that deception will be practised occasionally by a person furnishing a record. If so, he perjures himself; and we presume would be amenable to the law for so doing. Yet even if he were not, perjury is no light crime, and would be so disgraceful when found out, as it surely would be sooner or later, that the most brazen-faced scoundrel would long hesitate before committing such an outrage on the Society.

The plans we have seen hitherto proposed to be adopted here, do not strike us favorably. The one is for a committee to be appointed by the Jersey Society, to call on the owners of the cows to be tested, take them under their own care for a week or longer, and see to their feeding, milking, skimming, churning, and weighing. This would be very expensive and tedious, and few men capable of conducting such an oversight, and reporting the trial, could be found to engage in it. The other plan proposed is for all cows to be sent to a certain place for trial, to be carried on by a stationary committee appointed for this purpose. But cows sent away to a strange place, will not often feed as well, and be as contented and quiet as at home, for a considerable length of time. They would consequently not only lose in the production of milk, but also in its quality. Hence the trial of them under these circumstances would be a very unfair one. Moreover, the risk of sending a cow from home is considerable, and those possessing such as are of high value, would not be willing to take it. Herd books record without hesitation all pedigrees sent them by the breeders of stock, in accordance with the rules for entries. They rely on the owners of the animals alone for the evidence of the breeding, which is a necessity of the case; for who else except the owner can know anything about it, if he pleases to keep the facts entirely to himself? Jersey breeders are thus trusted in sending in their pedigrees, precisely the same as all others. Now if a man is to be trusted in this, unaccompanied with an oath, shall he not be in the much less important record of milk and butter production with an oath? In common fairness and credence we think so.

Fruits.—Maturity and Ripening.

In the botanical use of the word "fruit," it is applied to the ripened ovary of the pistil, and whatever remains attached to it. In this sense a pea-pod is as properly a fruit as a peach. In the ordinary use of the term, we apply it to the same parts when they become juicy and edible. Even this definition must be qualified; cucumbers, squashes, and tomatoes are as truly fruits as are apples and pears, yet we class them as "vegetables." The frequently asked conundrum, "What is the difference between a vegetable and a fruit?" has not yet received a concise answer. The object of the fruit, in its natural state, is to mature and protect the seed, and, in many cases, when the seed germinates, to promote the growth of the young plant by decaying and affording it nourishment. In accomplishing these objects, many fruits acquire properties which make them useful to man, and these, by cultivation, have been greatly increased, and many of our cultivated fruits are, so to speak, monsters, in which certain parts have taken on a development quite unknown to the fruits in their wild state. Leaving out of consideration what are known as the "small fruits," let us glance at the changes that take place in the tree fruits. After the blossom drops, the young fruit begins to grow, and in its early state, its growth and its relations to the air, etc., are much the same as those of a leaf. In the apple and pear, one portion of the fruit becomes large and pulpy.

In the peach and other stone fruits, a most remarkable change takes place. The very young peach, cut across, will be found to be alike all through, and pulpy or cellular. As it grows, one part, the inner of this pulpy portion, becomes greatly changed; the cells, at first so soft, soon become lined by a material which makes them so hard, that we call this part of the fruit a "stone." This portion surrounds and protects the seed proper, but is not a part of the seed. It is a portion of the same part of the peach which, when ripe, becomes so pulpy and edible. In the almond, which some regard as the parent of the peach, the whole exterior portion becomes hard and woody. In the apple and pear, when the fruits have made their growth, and can get no more from the tree, they prepare to sever connection with it, and, like the leaf, when its work is done, are ready to fall.

The fruit is then ripe, or rather mature, but often, especially the late varieties, it is hard and inedible. After the fruit leaves the tree, it undergoes great changes; these, in early apples and pears, take place very rapidly, often beginning while yet on the tree. In our autumn and winter varieties, these go on more slowly, and the fruit is not "in eating" until some weeks or months after it is gathered. It may be said that a fruit, after it is mature, at once begins to decay; we take it at a certain point in its progress towards decay, and say that it is mellow, or in eating condition; beyond that it is over-ripe, the next step being rottenness. The physical changes, the softening, the juiciness, and the change in color, are well known. The chemical changes are not less marked. The fruit absorbs oxygen from the air, and gives off carbonic acid. In a tight fruit-room, where large quantities of fruit are stored, the air becomes so charged with carbonic acid, that a lamp will be extinguished, and it is not safe for one to enter such a room until the air has been changed by ventilation. The constituents of the fruits are greatly changed; those which, when first picked, are sour and astringent, become sweet and delicious. A marked change is in the production of sugar, several substances related to starch, are converted into sugar, some fruits containing, when ripe, from three to ten times the amount of sugar they had when green; among other changes, tannic acid (the "puckery" principle) disappears. Our native persimmon affords a marked illustration of the changes produced in ripening. While but partly ripe, its astringency is proverbial; but when it has a long season, or ripening is hastened by frost, this completely disappears, and the fruit becomes very sweet and luscious. After a fruit has reached its best condition, it soon deteriorates and goes on towards decay. These changes may, within certain limits, be hastened or retarded by increasing or diminishing the temperature. Some green fruits, after cooking, become edible, the heat having caused a change in their constituents.

The practical points to be drawn from this brief sketch are these: As the evolution of carbonic acid takes place to a great extent, large quantities of fruit should not be stored in the cellar of the dwelling house, as it will be diffused through the floors, and cause headaches, general lassitude, and other mysterious troubles. A tight fruit-room, in which the accumulated carbonic acid is retained, will greatly aid in retarding the ripening of the fruit, by cutting off the supply of the oxygen of the air. Such rooms should not be incautiously entered. The fruit, if gradually ripened, will be in greater perfection than if the process be hurried. The most experienced fruit-growers keep the room at as low a temperature as possible, without freezing. For home use, when fruit in the fruit-room is found to be nearly in eating condition, its removal to a warm room, to "finish off," will be found to greatly improve its quality. Early apples and pears, which, if left to themselves, will become mellow on the tree, should be picked before this takes place, whether for market or for home use. One soon learns when the fruit is mature, by the ease with which the stems part from the tree. Such fruit will ripen in the packages in which it is sent to market. For home use, it may be had in the greatest perfection of both flavor and color, if ripened very slowly. We know of no better plan than to spread the fruit in a cool room, on a blanket, and cover it with an other. The fruit can be daily inspected, and those that are just right for eatings elected for the table.

The Black Knot on Plum Trees.

Mr. D. D. Gaines, near Catskill, N. Y., brings us peculiarly distorted branches from his plum orchard, and complains that the trouble is a serious one, as he has over two thousand plum trees more or less affected. The cause of this distortion of the smaller branches is a fungus, and it has long been known as "Black Knot." It has often been claimed by careless observers that the swellings were due to various insects which infest the peculiar outgrowths. The parasitic fungus attacks the young branches in early spring, causing them to increase rapidly in size; rupture of the bark soon follows, and the soft substance, coming to the surface, expands in an irregular manner, and is shortly covered with a peculiar olive-green coat. The fungus plant is like many others of the same low order of vegetation, as the various moulds, mildews, etc., and consists of a multitude of fine threads, that run in all directions through the substance of the plum tree. The olive color of the surface is due to a vast number of minute bodies called spores, which are formed on the tips of the threads, and, breaking away from their attachments, serve to propagate the trouble. After the knot has grown to some size, its soft substance offers a good home for various kinds of insects, and it is rare to find such a knot that is not thus infested. This was the strong argument in favor of the view that the knots were of insect origin. The scientific name of the fungus is *Sphæria morbosa*, and this, the cause of the black knot, is as much a plant as the plum tree upon which it lives.

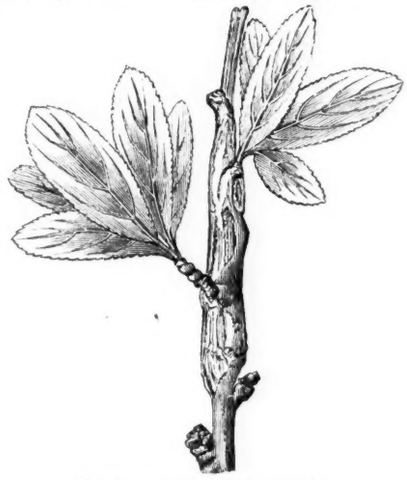


Fig. 1.—A YOUNG BLACK KNOT.

The olive surface-spores continue to form through the summer, and at autumn another kind of spore begins to develop within the substance of the knot. These are of slow growth, and are not ripe until the following spring. In this form the life of the species is carried through the winter season. It is evident that the trouble cannot be eradicated by any method of trapping insects, or by the use of insecticides. The infesting insects only take advantage of the soft substance of the knots, and have no part in their origin. The only remedy thus far known is the judicious use of the knife. The knots should be cut off and burned whenever they are found. They are most conspicuous in the winter, when the branches are not covered with leaves; but when a tree is attacked, it is not wise to delay the removal until a more convenient time. The diseased branches should always be burned, otherwise the spores will continue to form for awhile, and thus propagate the contagious pest. If the tree is badly attacked, it may be best to remove it entirely.

Fig. 2.—MATURE BLACK KNOT.

The Choke Cherry is a favorite host of the black knot, as the neglected fence rows often show in winter. All such trees should be rooted out. The cultivated cherry trees are subject to attacks by the black knot, for which the same remedy as that for the plum tree is recommended. Use the pruning-knife, always at sight, and cut several inches below the swelling, that all the infested portion may be removed. Figure 1 shows a young knot shortly after the rupture of the swollen stem in early summer. A full-grown knot, with its irregular and broken surface, is shown in figure 2.

The Sheep Grub.

During the hot days of mid-summer, sheep often huddle together with their noses upon the ground, or in some other constrained position. This is done, partly at least, to secure them from the attacks of the pestering Gad-fly (*Œstrus ovis*), which is the parent of the annoying Grub-in-the-head. This insect is closely related to the bot-fly, that deposits its eggs upon the neck, shoulders, and forelegs of horses, from which they are removed by the teeth of the animal, to allay the itching, and are taken into the stomach, and develop into the troublesome bots. The female sheep gad-fly aims to deposit her eggs in the nostrils of the sheep, and the animals, apparently aware of the effects to follow, try to prevent it. If the eggs are laid, they soon hatch, and the young grubs ascend the nos-

trils, greatly to the distress of the affected sheep. The "worms" attach themselves to the sinuses of the nose, by means of hooks like those of the horse bot, and live upon the mucus secretions of the irritated surface to which they cling. When fully grown, the grubs work their way down through the narrow openings, by which they entered when first hatched, and again cause the sheep much pain. The grubs fall to the ground, and burrowing for a few inches, become chrysalids, which develop into the perfect flies in about two months. The grubs pass from the sheep in early summer, and the flies come out of the ground from July to September. A daub of tar upon the nose is the best preventive, and should be frequently applied during the summer months. This may be done by sprinkling some meal or salt over the tar in a trough, when the sheep will apply it themselves as they eat the meal. Some farmers plow furrows in the pasture, to furnish the sheep a good place to bury their noses. The sheep grub is not fatal, but very disagreeable, and doubtless has a bad effect on the general health of infected sheep. If any one desires to study the grubs, he may find them in many of the heads of sheep killed at the shambles.

The Use of a Dry Well.

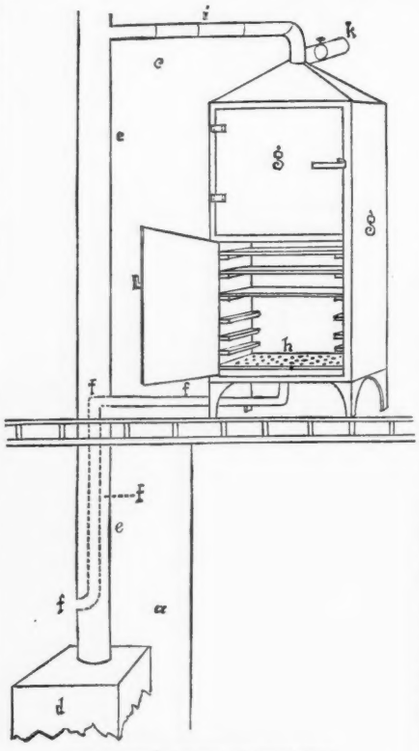
There are certain household wastes which can not be fed to the poultry or pigs, can not be burned, and will not decay on the compost heap. These, in a country place, where the cart of the city scavenger is unknown, will accumulate. The articles we refer to are old fruit cans; tinware, past mending; saucepans, which a crack has rendered useless; old bottles and leaky stoneware jugs and jars. These and others will accumulate,and a proper regard for neatness forbids following a too common custom of throwing them into the road. If a rubbish heap is established in an out of the way place, enterprising boys will find it and scatter its accumulations. There is but one effective way to dispose of rubbish of this description—bury it. A dry well is a useful adjunct to every neatly kept country place, be it large or small. In an out of the way corner dig a well or pit, cover it with pieces of plank too heavy for children to remove, and drop into this all kinds of indestructible rubbish. When this well, which need be but a few feet deep, is partly filled, dig another near by, using the earth taken out to cover the rubbish in well number one. This effectually disposes of the unsightly accumulations of rubbish, while the amount of labor required is not large, and the incidental drainage afforded may be beneficial.

A Farmers' Fruit Evaporator.

"Evaporated Fruit" is now a common term, applied to fruits that are rapidly dried by artificial heat, while that of "Dried Fruit," is used for the sun-dried product. Of course "Evaporated Fruit" is nothing more or less than dried fruit, but, the process being rapid and in the dark, a much handsomer product than the common article is the result. There are, as we observed in the July *American Agriculturist*, a number of patented evaporators offered for sale. All (so far as we are aware) are upon the same general principle—the rapid drying of the fruit by means of a current of hot air, and in the dark. The principle is not patentable, as it has been in use, to our knowledge, for many years; but various mechanical contrivances for applying this method are patented. We have hitherto advised our readers, who propose to prepare their fruit on a large scale, to look into the merits of the different forms of apparatus offered for sale, and purchase the one that seemed best suited to their requirements.

It will be cheaper, in the end, to purchase a well-tested apparatus, one that is sure to turn out a good article, than to experiment with makeshifts of home manufacture. With the farmer, who does not wish to go into the evaporation of fruit as a business, but merely wishes to work up his surplus in the best manner, the case is different. He does not care, if able, to invest in an apparatus which he can use for but a short time, and yet would be glad to improve the old method of drying.

One of our Canadian subscribers, Albert H. Smith, sends us a sketch of an evaporator for farmers' use. As in most farm-house kitchens, a fire is usually kept up all summer, this is designed to use the heat of the kitchen fire, and the work required to make it can all be done by an ordinary tinsmith. The "evaporator" is an ordinary drying closet, through which the heated air passes. This may be placed in a room over the kitchen, or



A FARMER'S FRUIT EVAPORATOR.

where there is a summer kitchen the evaporator may stand upon a shelf of the proper hight. The engraving shows the arrangement, which can, of course, be modified to suit circumstances, the chief point being to make use of air heated by the kitchen fire. In the engraving, *a* is the kitchen, *c* an upper room, with a section of the floor between. The kitchen stove, *d*, has a pipe, *e*, which passes up to the room above, where it either enters a chimney, or, as in some cases, passes out through the roof. The evaporator or dryer, *g*, stands in the room above, or in a summer kitchen, on a high shelf, and is so arranged that a current of heated air will pass through it. This hot air is supplied by the tube, *f*, of tin or sheet iron, and two inches in diameter. It runs up through the stove-pipe; its lower end being open, takes the air from the kitchen; this tube passes out of the stove-pipe in the room above, and connects with the evaporator, *g*, at the bottom. It will be seen that the portion of this air-tube within the stove-pipe will be heated, causing a constant current of hot air to flow through it. The evaporator is a closet of sheet-iron, or, perhaps better, of galvanized iron. Mr. S. does not give any measurements, but these may be easily determined. It has its door in halves, for convenience, and at every three inches are cleats, upon which the trays, to hold the fruit, etc., are to rest. At *h*, is a perforated plate for distributing the current of hot air from *f*. Directly over the inlet-tube,, at the top of the closet, is a tube, *i*, which connects with the stove-pipe, thus providing for a continuous current of hot air. At *k* is an escape-pipe, with a valve or damper, which may be opened for the rapid escape of hot air, if desirable. The trays are wooden frames, covered with galvanized wire netting. This seems to have all that is needed for a practical evaporator, and offers useful hints to those who would construct such an apparatus. It supplies a current of hot air, which, after taking up the moisture from the fruit, passes off above. Mr. S., in his sketch, indicates, on the horizontal part of the tube, *f*, between the stove-pipe and the closet, a place for a small stove for burning sulphur, but as he does not give details for its construction, we omit it. Those who prepare fruit for market, improve its appearance by means of sulphur fumes, but for home use this is not necessary. In using such an evaporator, rapid drying is important. The fruit should at first be spread thinly on the trays, the newest nearest the source of heat; as fresh trays are added, move the others higher, and when the fruit shrinks in drying, empty the contents of two or more trays into one.

Looking Out the Back Door.

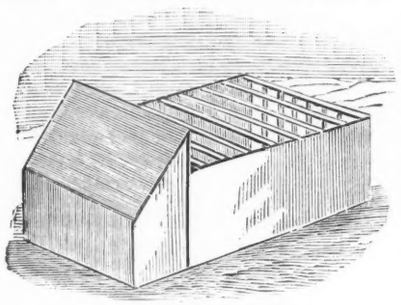
A friend of ours wished to hire a farmer for a wealthy neighbor, and we mentioned one who was wanting an engagement. Knowing that our friend had been to see this farmer, we asked the result. His reply was, in substance: "Yes, I went there; I went around to the back door and came away, knowing that he would not suit." The front doors of many farm-houses are rarely opened. The back door is in constant use. One need not go far in any locality, to find the outlet of the kitchen sink ending in a sort of ditch, which is supposed to carry off the waste water, but which only allows it to soak away and saturate the ground near the back of the house. The seldom used front door is opened when a small coffin is to be taken out. The minister speaks of "the mysterious dispensations of Providence." They are not at all mysterious. Bad sink drains at the back of the house are sure to bring typhoid fever and other sickness. Let the back door surroundings be looked to. If nothing better can be done, carry the kitchen wastes to a cesspool a distance from the house, where they can soak away far below the surface. Prohibit all throwing out of slops at the back door. The ground soon becomes charged with matters that ferment and breed disease. Where pigs are kept, and that includes every farm, there should be a pail, to receive all animal and vegetable matters and daily emptied. Nothing of the kind should be thrown out at the back of the house. Where there is such a disease-breeding sink spout as we have mentioned, let provisions be at once made to carry off the water to a cesspool, and cover up the saturated ground with dry earth. Let the back yard to the house always be kept scrupulously neat.

Green Corn for Pigs.

In the summer and early fall feeding of pigs, we have found sweet corn one of the best and most convenient kinds of fodder. Pork is made to the best advantage by putting the pigs, as soon as they are weaned from the sow and have learned to eat milk and meal, into the pen, and keeping them there under full feed until they are ready for slaughter in November or December. With a good breed of swine there is no difficulty in making March pigs weigh from two hundred and fifty to three hundred lbs., at eight or nine months old. With plenty of Indian meal and skimmed milk they will grow rapidly until the corn is large enough for cutting. About the first of August, this should be given as an additional ration. The pigs will eat the green stalks and leaves with the greatest relish after the ears have been plucked. It is an excellent appetizer, helps the digestion of more solid food, and promotes the thrift of the animals. Field corn may not be quite so nutritious, but no better use can be made of that, after the ears are in milk, than to cut and feed it to fattening swine. It costs much less to make pork in summer than in cold winter weather.

A Yard for Young Chickens.

A cheap and substantial yard for young chickens is shown in the engraving. The coop for the mother is placed at one end of the



YARD FOR YOUNG CHICKS.

yard, and from the front, on each side, wide boards run forward ten or more feet. These boards, placed on edge, make the sides of the enclosure, while narrow slats over the top and across the front end complete it. The young chickens can run outside of the yard as much as they please, while the mother is confined. At night the chickens return to the coop, where they are well above the ground and protected from rain and night prowlers.

Wooden Bridges.

The simplest form of wooden bridges for small streams is made by embedding in the earth, each side of the channel, a log from one to two feet in diameter, connected at the

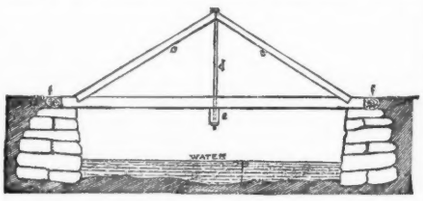


Fig. 1.—A SIMPLE FORM OF BRIDGE SPAN.

top by three or four cross ties, upon which plank poles or split logs are laid. Such bridges will last from ten to twenty years, according to the character of soil and variety of timber. In these bridges, the ends of the sills of the bridge floor should rest upon the plank, three inches thick, and at least one foot in width, that are placed upon the wall, and either laid in mortar or carefully chinked in with bits of flat stone. In fig. 1 is shown the simplest form of a self-supporting bridge, which will answer for spans of from ten to fifteen feet in length. The

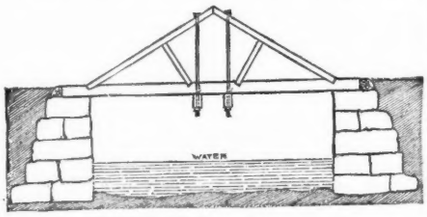


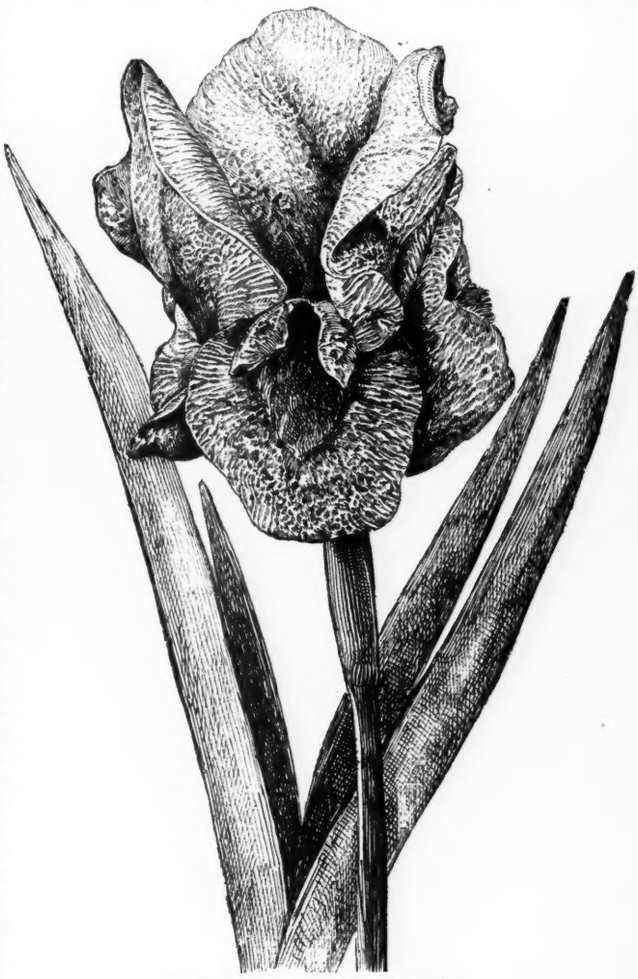
Fig. 2.—A STRONGER SPAN.

braces, *c*, *c*, reach from near the end of the sill to about four feet above the center. The truss rod, *d*, is one inch in diameter for short bridges up to two inches for longer spans; it is provided with an iron washer at the top. The rod passes through the sill, and a cross sill, *e*, which passes underneath the main sills, thus adding firmness to the whole structure. Logs, *f*, *f*, are placed against the ends of the sills to keep them in place, and where the wheels will first strike them instead of the floor plank, thus greatly equalizing the pressure.

In fig. 2 there is illustrated a modification of fig. 1, and one more expensive. The two truss rods and braces give the structure greater strength and solidity, adapting it for spans eighteen feet in length. For the latter length, sills should be of good material ten inches wide and fourteen inches deep, with three middle sills of about the same size.

Various Kinds of Iris.—Iris Susiana.

Were the common Blue Flag of our fields, *Iris versicolor*, the only Iris, it would, no doubt, be regarded as a charming plant. But this is only a native representative of a large genus, some of the exotic species of which far exceed it in the size of their flowers, if they do not in beauty of coloring. Our flower-growers take up as hobbies the varieties of the Gladiolus, Tulip, the Lily, etc. We hope that some one will turn his attention to the Iris, and show what can be be done with it. There is a mine of unexplored floricultural wealth in this immense genus. Aside from the more tender species which grow from bulbs, the great majority produce fleshy root-stocks, or are tuberous-rooted, and these as a general thing are perfectly hardy. Their flowers, in great variety of color, and often of large size, are as intrinsically beautiful as the costly Orchid flowers, which can only be produced at great expense. Besides the species and varieties that have long been in our gardens, Mr. Thomas Hogg, not many years ago, introduced from Japan an entirely new set of Irises. These are generally known in nurseries as varieties of *Iris Kæmpferi*, though this name must probably give place to an older one, *I. lævigata*. At all events, these differ from all other varieties of the Iris in the shape of their flowers, and present a richness and variety of coloring unequalled by any others. There is a set of dwarf species, the flower stems of which are not more than six inches high. The varieties of the Florentine and German Iris have stems one and a half to three feet high, while those of the Elder-scented Iris reach to the hight of four feet. We have not space to mention the wonderful variety in size, form, and color presented by the flowers of the different species. We know of no genus of hardy plants that offers a more attractive field to the patient amateur, who, by judicious crossing and hybridizing, can no doubt produce most satisfactory results. These remarks were suggested by the flowering in our grounds of *Iris Susiana* (named from *Susa*, the ancient Capital of Persia), which is called the "Chalcedonian Iris," and, quite appropriately, the "Mourning Iris." It has root-stocks, and in June throws up stems about two feet high, which bear flowers larger than in most other species, and of great elegance of form. They have the peculiar crape-like texture seen in some other Iris flowers, while the coloring is most striking. The ground-work is of a peculiar grayish color, and is most beautifully netted with a rich purplish-brown; there are on the petals also spots of this color. In the engraving, reduced in size about one-half, we can only give the shape. The coloring is so peculiar, that, combined with the great delicacy of texture, the

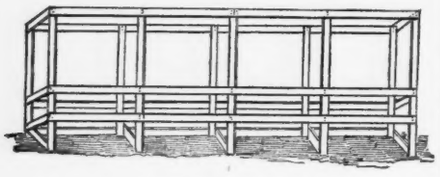


THE MOURNING IRIS (*Iris Susiana*).

flower appears to belong to a tender exotic, rather than to a hardy plant. The roots of this Iris, after flowering, should be taken up, kept dry, and re-planted in autumn. If left in the ground, they are apt to make a growth that will be winter-killed. With this precaution, we can commend *Iris Susiana* to our flower-loving readers as one of the most remarkable of hardy plants. If they have not made the acquaintance of the Japan Irises (*Iris Kæmpferi* of the catalogues), they have in these a rich treat in store. They are readily raised from the seed and bloom the third year.

Save Your Straw.

Our favorite rack is made by setting 14-foot posts 4 feet in the ground 8 feet apart. The poles for these posts should be about 6 inches through at the top end. The rack is 6 feet wide. At the top of the posts, along the sides and across the ends, we spike on a 2 by 6-inch piece to stiffen the rack and hold the posts in place. Just above the surface of the ground, we spike a 2 by 6 cross-piece at every pair of posts. On these, boards or poles are laid to keep the straw from the ground. The cross-pieces should be well spiked, as they must serve to keep the posts from spreading at the top. There must be no cross-pieces



A RACK OR FRAME FOR STRAW.

above these, except at the end of the rack. If put high up in the middle of the rack they will prevent the straw from settling down when eaten out from below. The object in having the rack so narrow is to allow the cattle to reach nearly to the center from each side, so that the straw will constantly settle down within their reach. Ten inches above the floor we spike on another 2 by 6-piece clear around, and 16 inches above this, still another is spiked on, making a space through which the cattle can pass their heads. The space, between the lower piece and the floor answers for sheep to reach through. On many small farms this rack, 30 or 40 feet long, would hold all the straw. On large farms it might be filled several times during the winter from the main stack, which could then be fenced to keep the cattle away from the straw entirely.

Avoid Farm Mortgages.

Mortgages are necessary and beneficial in civilized society, but there are unpleasant features about them. They often enable a man to accomplish what he could not otherwise do, and they also often involve a man who would have been otherwise successful. They often enable a man to get out of trouble which he could not otherwise avoid, and they perhaps equally often make miserable a life which would have otherwise been happy. It is easy to get them on to the farm, but it is not always so easy to get them off. Farm mortgages are about the best investment that capital can find. Investors generally like them. They partake of the nature, permanence, and other substantial qualities of real property, but are relieved from many of the burdens imposed upon land. One investment company in New York City has upwards of $20,000,000 in farm mortgages, mostly on Western farms. The money draws seven per cent and upwards, and is obtained in Europe at four per cent, so that the annual profits to the investment company are about $600,000. There are perhaps a dozen such companies in New York City alone, and there are private investors, now that money is plentiful, all over the country; so that there is no lack of opportunity to get mortgages on farms. But so hard are they to get off that, notwithstanding the fact that investors will not generally loan more than a third or a half of the value of the security offered, a broker who deals largely in farm mortgages, recently said to the writer that, as a rule, mortgages are not paid. That is to say, when a farm is once mortgaged, it in a majority of instances remains so for a long time. If one mortgage is paid, another is made to raise the money. If it is foreclosed, it is very rare that anything is paid back to the farmer. If it is sold, it often continues to be traded around until it gets into the hands of some one who uses it in buying the land, and so it gets "satisfied."

Money at seven per cent will double in ten years if the interest is kept invested. If the farmer carries a mortgage of say $5,000 for thirty years, it will cost him, at seven per cent, about $35,000 for the use of the $5,000. This enormous figure, obtained by computing interest at seven per cent on the amounts paid, is no more than a fair estimation of the cost of such a mortgage, for the farmer can doubtless always invest his money in something which will yield him seven per cent.

Therefore:—1. Do not mortgage the farm unless it seems absolutely necessary. But, as a general rule is less valuable than a particular one, it may be well to specify, by adding: 2. Do not mortgage to build a fine house. By so doing, you will have to pay money for an investment which does not bring money. 3. Do not mortgage the farm to buy more land. Where there is absolute certainty that more can be made out of the land than the cost of the mortgage, this rule might not apply. But absolute certainty is rare, mistaken calculation is common. 4. Do not mortgage the farm unless you are sure of the continued fertility of its soil. Many persons borrow with an expectation of repayment based on an experience of the land's virginity only, which, on failing, may leave the land less productive, and the means of repayment thus be removed. In this way trouble begins which may result in the loss of the farm. Keep very clear of mortgages.

Remedy for a Kicking Cow.

Mr. "T. H. C.," Cortlandt Co., N. Y., has a fine young cow, naturally timid, that through ill-treatment acquired the habit of kicking while being milked. Mr. C. tried several remedies commonly used in hampering kickers, but without success. Finally the following was effectual in breaking the bad habit: Take a strap five feet long with a buckle on one end. Double the strap nearly in the middle; place the loop thus made around the left hind leg above the gambrel, and slip the two ends through the loop, drawing it tight. Place the ends of the strap around the other leg above the gambrel, and arrange the longer end around the double strap between the legs; buckle it tight to the shorter end, thus bringing the legs as close together as natural. The cow can stand easy, but cannot lift either foot alone, or pull it out of the noose. The same method was tried on a young heifer in breaking to milk, and proved generally satisfactory.

Useful Farm Devices.

Mr. "H. R.," New Columbia, Union Co., Pa., sends us sketches of useful articles for the farm. Figure 1 represents a contrivance for

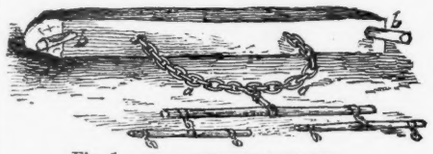


Fig. 1.—CORN STUBBLE BREAKER.

breaking down cornstalks. The log should be about 12 feet long, so as to take three rows of stalks at a time. A chain, *a*, is fastened about two feet from the ends of the log. A stout pin, *b*, is driven in near each end to catch such stalks as may be leaning down. Autumn, when the sap in the stubble is frozen, is the best time to use the implement, as then the stalks will snap off easily.

Figure 2 shows a method of conveying water from the well at the house to the barn-

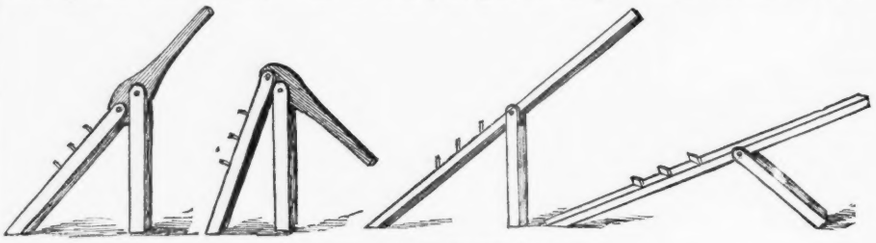
Fig. 2.—UNDERGROUND WATER TROUGH.

yard by means of pipes laid underground. The pump is at *d*, and *b* is a trough to convey the water from the pump to the pipes.

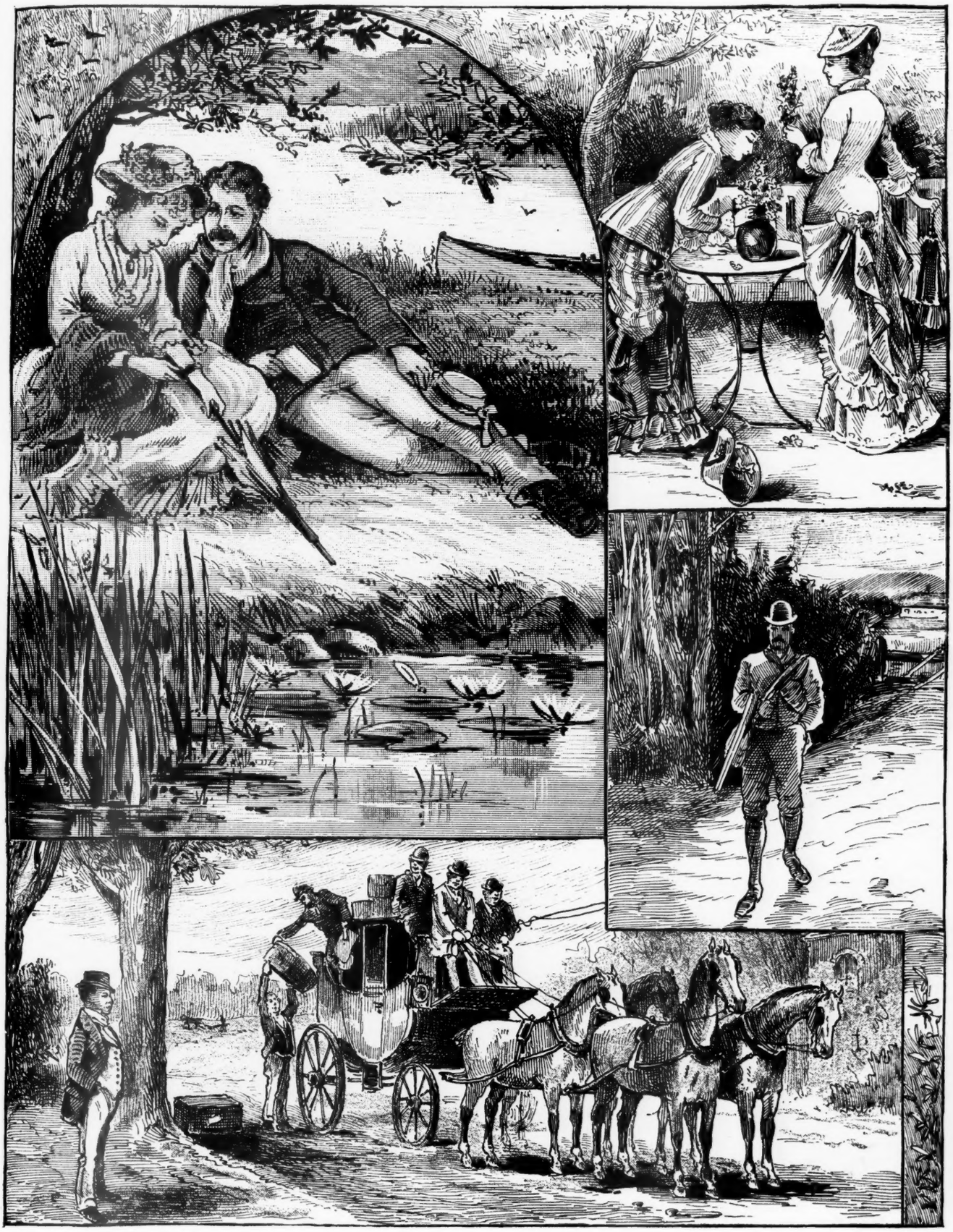
Two "Jacks."

A jack, simple in construction and easily made, is shown at the right. (See illustrations.) The upright post can be attached to the lever by a leather tacked over the top by an iron hinge, or a mortise and bolt. The axle can be held in place and prevented from slipping by wooden pegs in the lower part of the lever.

A strong jack is shown at the left hand. The lever moves in a slot, or mortise, in the top of the post, and also on the end of the post which goes under the axle. When the axle is elevated, the pin in the end of the lever should be directly above the one in the post, which will prevent its falling back. The lever under the axle should be three inches square, and of hard-wood; the handle end, one inch thick, running from an inch and a fourth wide at the small end, to five inches at the upper end. Pegs in the lower end will keep the axle from sliding down after it has been properly raised.



TWO CONVENIENT WAGON JACKS.



SUMMER DAYS IN THE COUNTRY.

Drawn and Engraved for the American Agriculturist.

A Simple Subjugator.

My familiarity with domesticated bovines for a period of over 60 years, has given me ample opportunity to observe their characteristics. The frequency of the attacks by bulls on their keepers, killing or disabling them, led me to make the effort to invent an economical and practical means of subjugating and controlling these animals under all circumstances. This is well accomplished thus:

I made a light head-gear, yet one that is strong, easily adjusted, and durable, and appended it to the ordinary nose-ring. It consists of capped knobs on the horns, with two eyes in each knob, through which a wire cord of nine strands plays. There are two pieces of cord, and on one end of each a suitable ring is attached, by which it is secured to the nose-ring. The cords are then passed through the eyes on the knobs and attached to screw-eyes, which are tapped right and left, and each is screwed into a swivel, tapped to correspond with the screw-eyes. Thus, a revolution of the swivel in one direction will shorten the cords, and when turned in the opposite direction will lengthen them, and the gear may be adjusted to the growth or expansion of the horns. When the gear is adjusted, the nose-ring is held up, instead of hanging over the end of the nose. Stress on the cords, whether applied between the horns, or between a horn and the nose-ring, will pull upward on the nose-ring, in which direction the nose is more sensitive than in any other, and a slight blow on the cords with the hand, or a light stick, like a walking-cane, instinctively causes the animal to retreat. The use of the Subjugator soon makes the animal so timid that he declines combat with other animals, and carefully avoids contact with fences and gates. Still another good advantage in the use of the Subjugator, is that it enables the keeper to seize by the hand, and control the animal from the front, or from either flank, as desired, and without hazard.

All familiar with the habits and proclivities of the average "Taurus," will welcome the simple means here described for the protection of human life from the attacks of this treacherous animal.

A.

Again Chess!

It is most surprising that the belief that chess is in some way derived from wheat, should be so general among farmers. While the agricultural journals, for many years, have taught to the contrary, the belief seems to be quite as general and as firmly fixed as it was a quarter of a century ago. Letters frequently come to us, of which the following, being short, will serve as a sample. A farmer in Westmoreland Co., Pa., writes: "Please let us know what is the real cause of so much chess or cheat being found in wheat. Does it come from the wheat being damaged in threshing, by bad seed distributors, or from the eating off of the wheat by animals in spring time? It is most noticeable where the chickens pick the heart out of the wheat. Does it come from seed?" It will be seen that this correspondent, like all the rest, looks to some accident to wheat as the cause of chess, though, unlike most others, he is ready to be told that it may come from seed. We have kept the run of this matter quite closely, and for several years the *American Agriculturist* had a standing offer of a reward for a specimen that was part wheat and part chess. We can briefly sum up the matter by saying, that we have never seen or heard of an authenticated case in which chess came in any other way than from chess seed. There is not a shadow of proof that wheat ever changed into chess, though there has been abundant assertion that it will do so. Some have claimed to be able to convert wheat into chess at will, by cutting the plant at a certain time, by trampling the wheat by cattle, and by other methods, but when these were tried, as in one case before a Committee of the New York State Agricultural Society, the charm failed to work. Last summer, a specimen of a "wheat and chess" plant was sent us in great confidence, but by soaking the roots and carefully moving the parts, the chess plant was separated from the wheat, without breaking a fibre. Clean seed wheat, and manure free from weed seeds, are sure preventives of chess!

A Combined Dairy and Ice-House.

CLASS VII.—FIRST PRIZE.

We present in illustrations 1, 2, and 3 designs of a cheap and convenient dairy and ice-house combined, which many of our readers will find of value. The front and side elevations and the ground plan

Fig. 1.—FRONT ELEVATION OF DAIRY.

are shown. The building stands five rods from the dwelling house. The frameof the building is 22 by 36 feet, set on a stone foundation 18 inches high and 16 inches wide, laid in mortar. From the top of the stone foundation to the eaves is 14 feet. Around the ice-room and refrigerator, on the inside, is placed a lining, 16 inches from the outside, the space between being filled with saw-dust and charcoal-dust, packed hard. The floor of the ice-house has 18 inches of saw-dust on it before the ice is put in, also saw-dust on each layer of cakes, wet to pack closely and evenly. The ice-room extends to the roof of the building. A ventilator is placed in the center of the roof, over the ice-room. A door is in the ice-room end of the building, eight feet from the ground. On the outside of the building is a rack three feet wide, made of poles, fastened together by rods. The poles lie parallel to each other, and make easy work of filling

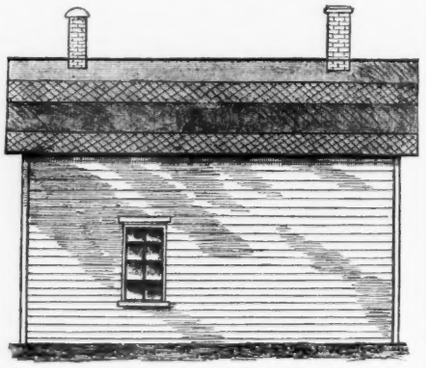


Fig. 2.—SIDE ELEVATION OF DAIRY.

the house. Ice-tongs are arranged on a simple pulley-block that is permanently fixed in the central rafter. The rack of poles for filling in the ice is laid along the side of the house, and makes a fine place for sunning the dairy pails and pans. The refrigerator, 16 by 10 feet, is packed the same as the ice-house. A slight wall is laid from the foundation underneath, the same size as the refrigerator, to hold in place the packing of saw-dust and charcoal-dust, which is filled in before the matched hard-wood floor is laid. The room is ceiled overhead with tightly-matched boards; sixteen inches above is a second floor, the space between being packed with saw-dust. On one side is a frame fitted with double air-tight windows. Directly opposite is the door, which is double, 12 inches thick, and filled with charcoal.

The ice-box or cooler is an important feature. This is made of matched lumber, reaching the entire width of the inside of the room, two and one-half feet wide and high, and is placed securely within six inches of the ceiling, on the side joining the ice-house. The box is zinc-lined, and contains a rack on which to lay the ice. In the side, next the ice-house, is a door through which the box is filled with ice. A block is brought to the door by the use of the pulley, and in a few minutes the work of filling the box is done with ease. The ice-box is placed so as to slant, half an inch from the inside to the outside end, where there is a small discharge-pipe, that empties outside into a log trough. Under the window, on the inside, is a small sink, to which is attached a pipe, emptying outside. On the side next the ice-box, and on the opposite side, are racks holding eight jars each. The jars are about twenty inches high, with inverted cone-shaped bottoms; they are about twelve inches in diameter, and made to order, costing $19.00 for the sixteen jars. The jars are of white earthenware, glazed inside. The milk is strained in, and stands twenty-four hours; it is drawn off first, and when the cream is seen through the faucet, another pail is substituted. In ordinary summer temperature, twice filling of the ice-box weekly is sufficient to keep the air of the entire room at an even temperature. The cold air comes in constant contact with the surface of the cream. Under the ice-box is a storage-room for the cream-jars and butter-tubs. The rest of the first floor of the building is used as a work-room, arranged with

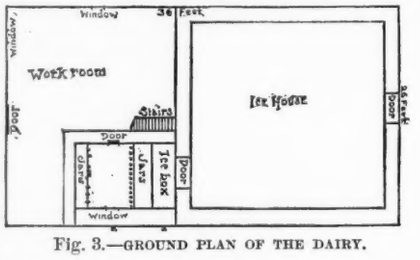


Fig. 3.—GROUND PLAN OF THE DAIRY.

sinks, shelves, towel-racks, etc. The floor above is reached by a trap-door in the ceiling, and a narrow flight of stairs alongside of the refrigerator. The work-room is well lighted by two windows, and the entrance-door with glass upper panels.

The actual cost of the building, aside from our own labor, was an even hundred dollars, but I could not furnish estimates that would be reliable in all localities. Here each farmer has plenty of stone at hand for foundations, and the mills are near for lumber and shingles. In all the linings, except the refrigerator, culled timber was used. The outside is clapboarded, and painted with a home-made paint that is cheap and effective. No paint is used in the refrigerator. The house is used for a dairy of thirty-eight cows. A small stove can be put in the work-room, and the door of the refrigerator left open in cold weather, if a fire is needed to keep the proper temperature.

A satisfactory point in the refrigerator system is, that the ice does not have to be cut; therefore there is no waste. The cold air, instead of ice, comes in contact with the jars and the surface of the cream. This house stores ice for all needed dairy purposes, and also sufficient for the general use of two families, and in the fall there is still at least one layer of ice left in the house. This is the third year it has been in successful operation.

Animals Injurious to Agriculture.—The Raccoon.

The Raccoon (*Procyon Lotor*) is one of the farmer's enemies. It combines the cunning of the fox with the wisdom of the ape. There is no robber of chicken roosts and poultry nests more implacable than the raccoon, and, unlike most predatory creatures, it is seldom content with killing for the mere satisfaction of appetite. No hight is too great for it to scale, or passage too concealed or tortuous for it to find and traverse, while its overpowering curiosity and inordinate greed, aided by a brain of wondrous subtleness and fertility, lead to the accomplishment of acts seemingly as foreign to its nature as they are strange to understand.

There are few feathered creatures that do not become the prey of the coon, and their nests and eggs are diligently sought and destroyed. Of the birds he devours little but the heads and necks,

THE RACCOON.—*Engraved for the American Agriculturist.*

unless pressed by hunger, while the nests and eggs are maliciously broken up when appetite is satiated. Berries of all kinds are the coon's delight. When the corn is in the milk, he fairly revels among succulent ears, breaking down the stalks, during a single night destroying far more than would satisfy the demands of a score of hungry relatives. In the South he renders himself equally obnoxious by his *soirees* among the sugar cane, and where two or more combine, the havoc exceeds that of double the number operating independently. At various times, coons have appeared among the low lands of Maryland and Virginia, about Chesapeake Bay, in such overwhelming numbers, as to force the inhabitants to take the field in a war of extermination, in order to preserve their crops, and the same is equally true of some portions of Carolina, Georgia, and Louisiana.

After a foray upon the farm yard, the raccoon is commonly possessed of sufficient astuteness to allow some time to elapse before a second is attempted. The cane and maize fields possess such overflowing temptations, that all caution is forgotten, and the coons return night after night with constantly increasing impunity, until finally they are tracked to their hollow trees, or burrows, and summarily dragged forth and made to suffer the penalty of their misdeeds. Even the pumpkins are not always safe, though it gnaws them through only to secure the seeds; and sometimes, in planting time, the seed-corn is uprooted for the sprouting kernels.

Another source of annoyance is the coon's love for the orchards, where it is wont to amuse itself by severing the stems, allowing the fruit to fall to the ground. That the act is one of pure enjoyment, is apparent from the attitudes it assumes, by sharply cocked ears, that listen for the thud as the fruit strikes the earth. In the sugar season, the maple-sap troughs and buckets are not neglected. I am not aware that it ever molests the stores of the honey-bee; presumably its coat affords too little protection from the stings of these irascible creatures, and its face and extremely sensitive nose would ever be open to their attacks. The bees themselves, however, are sometimes eaten by the raccoon, as are most insect forms, even to beetles and grubs.

The raccoon is described as a nocturnal animal, while in truth all hours of the day or night are pretty much the same to it. Its shrewdness, however, leads it to seek the cover of darkness, while experience has taught that fishing is attended with better results when practised in the shadowy and uncertain light of the moon. I have observed it at different hours during the day skulking along the margins of streams, hunting for frogs and turtles, or stalking the wild duck and her brood, and even feeding in the maize fields. In one instance the writer caught a coon invading cautiously the well-stocked poultry yard at high noon.

Where only high and dry woodlands or broad expanses of prairie prevail, the raccoon is seldom encountered, save as a rambler. Low, moist grounds, with lofty trees, are preferred, like the well-wooded swamps and lagoons of the South; while to the northward, forest slopes, bordering lakes and ponds, or traversed by brooks and rivulets, are selected. The purely evergreen forests of the North rarely shelter it, since nuts, acorns, and other mast are an important factor in the problem of life at certain seasons of the year. Hence its presence therein must be held as accidental. But wherever the coon is established, it wanders over wide stretches of territory in summer, often miles away from its home, absenting itself for days and even weeks, especially during the wooing season. It is during such excursions that it is met with in the open prairie, being led thereto, presumably, in search of grouse, plover, and other feathered creatures and their nests, along with mice, hares, and gophers.

North of Ohio and Indiana, the raccoon hibernates in winter, but rarely, if ever, in lower latitudes. But even in his most extreme northern habitat, the habit is by no means general or constant, as with the bear, but appears rather as assumed, to correspond with diminished food supply. In Northern Michigan I have found them racing over the snow on bright mid-winter days, while with the advent of extreme cold or stormy weather, it retired again to its peculiar sleep in the recesses of its lair. At the same period, a pair held in confinement, and abundantly supplied with food, at no time exhibited any tendency towards hibernation, though constantly refusing admission to their kennel of all articles looking to increased warmth, preferring to make their beds upon the naked boards. Even during the coldest days, when the thermometer was down in the twenties below zero, the advent of a tub of water was heralded with manifest delight, in the cold water of which they would paddle and play, and push the ice about until wetted to the skin.

The females retire in April or May, when from four to six young are born, that develop but very slowly. The aptitude of half-grown cubs for mischief, and the ease with which they are domesticated, are familiar stories; but as they reach maturity, they become even greater pests than their forest brethren, are great thieves, and often develop a most surly and snappish temperament.

Great Loss of Jersey Cattle on the Ocean.

In the transportation of sixty head of Jersey cattle on a steamer from Liverpool to New Orleans in May, fifty-one were lost. Some of these were washed overboard, while others were drowned on the deck through the shipping of heavy seas in a gale. We presume these animals were full grown, whereas had they been calves about six months old, they could have been brought over, even in the roughest weather, in safety under deck, and the first cost of their transportation would not have been more than one-third that of full-grown animals.

Some persons object to importing young stock, fearing that such will not equal their expectations when arrived at maturity, but if they knew how the animals were bred—and what their parents were—there would be no risk. It has been said that transporting of cattle so young checks their growth, but this is a mistake; they are only two or three weeks on the voyage, and if judiciously fed and watered on board ship, will thrive during the transit, or at least will not lose in condition. Instead of separate stalls being required for each calf, three to six animals, according to size, may be penned together; they will then prevent each other from being thrown violently down upon the floor of the apartment, or against the sides of the pen, by the rolling and pitching of the steamer.

The season for shipping the above animals was fairly chosen, especially when bound to a southern port like New Orleans. May is not apt to be so tempestuous as from November to April. During the latter time it is extremely hazardous to transport live stock across the Atlantic, and it never should be done, especially with large animals.

Early Plowing for Fall Wheat.

The sins of man committed in the tillage of the soil have brought upon him the judgment of impoverished land—not always lacking in the elements of fertility, but barren because those elements have been made unavailable. When the soil is virgin, wheat sown upon freshly plowed and imperfectly prepared land, sometimes makes a good crop; but this can not last long. To secure a good yield of fall wheat, it is best to plow the ground as soon after harvest as possible. It should not be delayed after the twentieth of August near the fortieth parallel.

The first object gained by early plowing, is time for the proper preparation of the seed-bed. All possible fertility should be made readily available. To be so, it should be soluble, and division aids solution. The ground becomes hard in July and August, and if plowing is delayed too long, the soil breaks up in hard lumps. If plowed early, it will turn up moist and fine. Rain and air are nature's two great disintegrating forces.

Seeds germinate quickly and plants grow rapidly in a firm seed-bed. The increase of insect enemies of wheat makes late sowing, coupled with rapid, vigorous growth, desirable. Hence the importance of a firm seed-bed, which also prevents much freezing out of the plants. To make the seed-bed firm, it must first be fine. It is not a hard soil, but compact, fine soil that is desired. It may be compacted with the roller and harrow; but if the farmer, by early plowing, can gain the aid of a heavy rain,

it will save him much labor, and it will do the work of preparing the soil far better than he can alone.

Another object gained by early plowing is the destruction of weeds. They are robbers of the wheat, and the sooner their growth is stopped by plowing, the less plant-food they will take from the soil. Early plowing will destroy them before they mature their seeds, and thus prevent perpetuating their kind. Late plowing admits of a large growth, and when this is turned under by the plow, it is impossible to compact the seed-bed, and the green manure affords a harbor for enemies.

Early plowing admits of a better application of manure. Manure is most needed in autumn, and to be at once available to the roots of the young plant, it must be fine and near the surface; not on top of the ground, but thoroughly incorporated with the upper layer of soil. If the ground is plowed early, the manure can be applied to the surface, and the work of preparing the seed-bed will fine it and mix it with the soil. Commercial manures should be sown with the grain.

Early plowing admits of atmospheric fertilization. Whether it directly adds the elements of fertility to the soil or only frees and unlocks that which it already possesses, is immaterial. Plowing the land exposes a greater surface and permits of the easy passage of the air into the interior of the soil.

Cotton as a Plant.

A cotton field, when picking begins, is an interesting object, though the individual plant is lost sight of, and we look only to the product, the fibre. But a small proportion of all those who live in the Northern States have ever seen a cotton plant. At the Centennial Exhibition, a fertilizer company had a large bed filled with cotton plants in full growth, and probably no bed on the ground attracted more attention than this. Cotton may be readily had in Northern gardens, by sowing the seeds in pots or boxes in a hot-bed or in the house-window, treating the seedlings the same as tomato-plants, and setting them out at the same time. Give them an abundance of room; they should be planted at least three feet apart each way, when each will form a much-branched rounded specimen. The plants are ornamental, and to children they are a constant source of interest and instruction. There are several species of *Gossypium* (the botanical name of the genus, from the Arabic) and these have become much mixed in cultivation; some being of Asiatic origin, and others natives of tropical America. The plant belongs to the Mallow Family, and, of course, has much in common with the Mallow, Hollyhock, Hibiscus, etc. The ample, lobed leaves, make the cotton plant an attractive one. The flowers are borne upon stalks in the axils of the leaves; each flower-bud is at first inclosed in an involucre of three large, heart-shaped leafy bracts. The appearance of this, is the

Fig. 1.—"SQUARE."

Fig. 2.—COTTON FLOWER.

first indication of flowering, and when these bracts come, (fig. 1), planters say that the cotton is "in the square." The flowers, two inches or more in diameter, are quite showy, and have the general appearance (fig. 2) of the flowers of the family. In color they vary from white to pale yellow with a purplish spot at the base, and some have purple flowers.

Fig. 3.—MATURE BOLL.

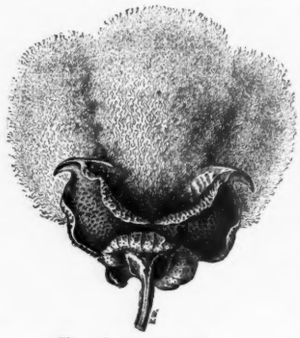


Fig. 4.—OPEN BOLL.

After the flowers fall, the seed-pod, or "boll," as it is called, begins to grow. This is three or five-celled, and as the seeds increase in size, numerous fine long hairs are produced on their outer coats. Figure 3 shows the mature boll, and the appearance of the same, after opening, is given in fig. 4. The parts of the pod, technically the valves, spread open and curl backwards, exposing the snow-white contents. Probably the hairs upon the seed were originally of use, either to preserve it, or to aid in its distribution. At any rate, each seed is provided (fig. 5) with a copious tuft of long hairs, which, when separated from the seed by means of

Fig. 5.—SEED, WITH ITS COTTON.

the gin, forms the important industrial and commercial product, cotton. In fig. 6, a seed is shown, divided in two lengthwise, exposing the embryo within, the cotton remaining attached to the half of the seed-coat. When the bursting of the bolls begins, the cotton field presents a most attractive

Fig. 6.—SEED CUT LENGTHWISE.

appearance, especially to the planter. It shows that the crop is beyond all injury from the weather, save by frost, that his fight against the various insect enemies of the crop, is at an end, and that the returns for the season's labor are nearly at hand.

Railroad Gardening.

The traveller in England finds that the railroad stations, however small, are in marked contrast with similar stations in this country. Instead of the usually desolate appearance, often increased by accumulations of old ties and other railroad rubbish, seen at home, the grounds surrounding the station houses are laid out and kept with all the care given to a private garden. So excellent an example has extended to this country, and one of the railroads running south from Philadelphia has for some years employed an experienced gardener to superintend the planting and care of the grounds around its numerous depots. The present season, the grounds surrounding the signal houses, on both sides of the Bergen Tunnel, have been put in order and large ornamental beds planted. These beds are in the "fire-works" style, but we are not disposed to criticise so long as something is done to relieve the former desolate appearance. It would be vastly better for each road to employ a competent person to lay out and plant the grounds around its stations than to leave this to the fancy of station-masters. So far as we have observed, when the plantings are thus left, efforts are directed entirely to immediate effect. Areas are devoted to the usual bedding plants, but no provision is made for the future. A competent superintendent, while he would not neglect the bedding-plants, would set out ornamental trees, flowering shrubs and hardy perennial plants. With these the surroundings of the stations would increase in beauty from year to year, and with a proper selection of hardy perennials, the need of an annual renewal of bedding-plants becomes thereby greatly reduced.

Another matter, much regarded in Europe, but little considered in this country, where it is much more necessary, is the planting of climbers around station buildings. The passing traveller has but a few minutes, at most, to notice such improvements, and nothing is more striking than to see the buildings draped with climbing vines. Besides beautifying the surroundings of the stations, in some parts of France and Germany, the sides of the railway embankments have been turned to account by devoting them to the cultivation of fruit trees of various kinds. The embankments on some of the roads in this country present a large area, which in time will produce something—usually a crop of weeds. If the embankments are not suited to fruit culture, they may generally be made useful by sowing them to grass, which, besides keeping down the weeds, would render good service in binding the soil and preventing sudden "washouts." Some years ago the traveller over one of our Middle State roads must have noticed the vegetable patches attached to the cabins of the road-tenders. These were often examples of excellent culture, and served to show how the wasted land along the roads might be utilized. Land will not always be so cheap in this country as it is at present, and our railroad companies will find it to their interest to utilize a vast area that now goes entirely to waste, by planting trees and shrubs.

Hemlock for Well-Curbs.

In many sections of country stone is scarce, and plank is used for curbing up wells. Pine lumber gives a disagreeable taste to water. A neighbor has a curb that has been in use for two years, and the water still has a bitter taste. This spring I induced him to put in a hemlock one, such as I have used for the last twelve years, and which is still in good condition. He commenced using from this well as soon as the water had fairly settled, and it has never tasted a particle. Hemlock lumber is usually cheaper than pine, and can be obtained at most lumber yards. Five hundred feet of lumber is sufficient for a well 14 feet deep, 3 by 4 feet outside measurement. The four posts should be 4 by 4 inches, and the planks 2 inches thick, fastened on with heavy spikes. Dig down until there is danger of caving, and then put in the curb, with planks enough on to reach the surface of the ground. Afterwards dig the earth from the inside of the curb, and put on the planks as fast as needed. In some soils that are loose, the weight of the curb will settle it down as the work progresses; should it not, drive on the posts. Such a curb, made of sound hemlock, will last for years, and give pleasant water from the first. W. D. B.

Root House, or Cellar.

FIRST PRIZE PLANS BY "FLATS" (F. GRUNDY), CHRISTIAN CO., ILLS.

The root house, shown in the engraving, is designed for a flat country, where water rises to near the surface. It may be of any size, 8 by 12 to 18 by 36. The floor is three feet below the surface of the ground, and the walls are brick, laid in cement. The joists, five feet apart, rest on abutments two bricks square, which also serve to strengthen the wall. The joists are 2 by 18 inches. The under side of the cellar is ceiled with inch boards. All space between the joists is filled with sawdust. The roof is covered with shingles, or "rubber roofing," the latter is superior to shingles for this purpose. All space between the rafters and joists is filled with

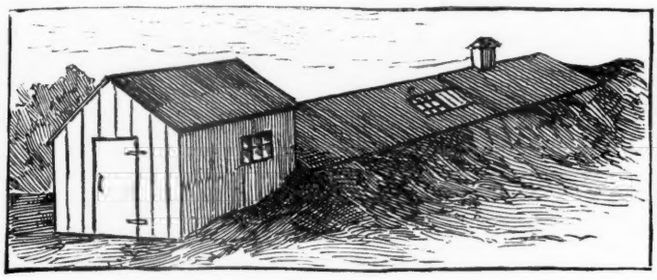


Fig. 1.—EXTERIOR OF A ROOT HOUSE.

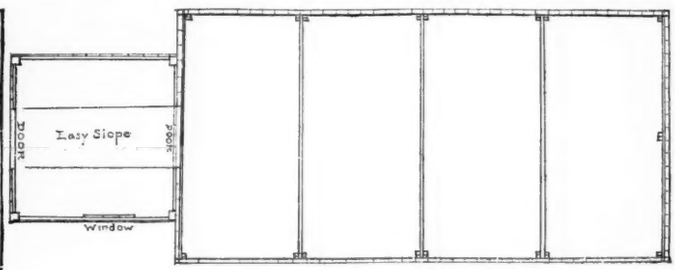


Fig. 2.—GROUND PLAN OF ROOT HOUSE.

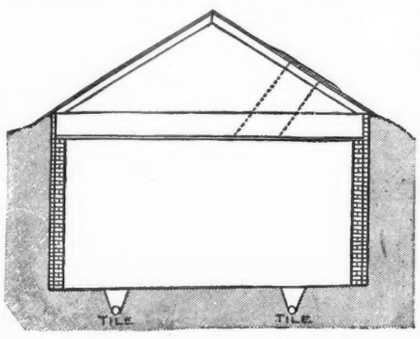


Fig. 3.—CROSS SECTION OF ROOT HOUSE.

chaff. The house should run east and west, and have a window in the south side of the roof. The space for the window is boxed. Each window is double; one sash fits flush with the roof, and one with the ceiling. Both are hung on pivots and serve as ventilators; box ventilators, (fig. 8), may be added if desired. The building over the entrance is 8 by 8 feet square, 5 feet high at the sides, and 8 in the center. There is a door at the end, and a window in the south side. The entrance

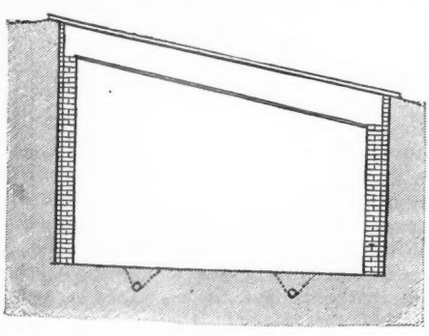


Fig. 4.—ANOTHER FORM OF ROOF.

door to the root house may be double in very cold climates. Excavating is mostly done with team, plow and scraper. The earth excavated is banked around the building.

Figure 4 shows another form of roof for the same kind of a house. The walls are 5½ feet high on the low side, and 7 feet on the high side. The rafters are 18 to 24 inches apart, and the space between is packed with sawdust. The roof is of inch boards,

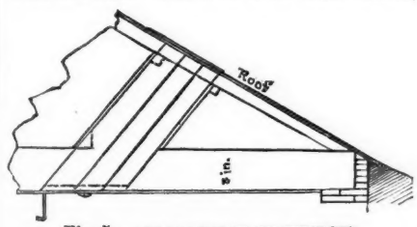


Fig. 5.—ARRANGEMENT OF WINDOW.

covered with tarred paper and "rubber roofing," or shingles. There is a window near the center, hung on pivots. This roof is a little cheaper than the other, and with rafters 24 inches apart has proved frost-proof, with the thermometer 30° below zero. During cold periods, a large-sized lamp lighted and set in the 12 by 20 house kept the air at 44°. Bins of any size or shape, suitable for the kind of roots housed, can be constructed inside. Any bricklayer can give an estimate of materials and cost of construction in his section of the country. The ventilator opens and closes by raising up or pushing down the top. Figures 5, 6, and 7 show how the windows are constructed and hung. The floor is kept perfectly dry by laying two tile drains 18

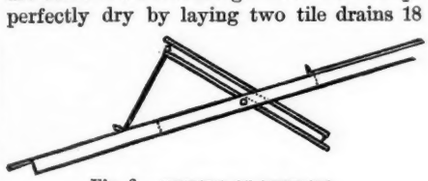
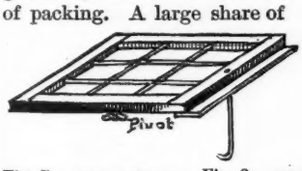


Fig. 6.—SECTION OF WINDOW.

inches beneath it, shown in figs. 3 and 4, and leading to a convenient outlet, not far away.

Wasting the Produce.

Those who have had experience in raising vegetables and fruits for market, soon learn that producing the crop is but a part of the business. Success depends quite as much upon the proper marketing of the produce. Where the articles are to be sent to a distance, the packing is a most important consideration. Many who send fruit and vegetables from Southern localities, must be paying dearly for their lack of knowledge as to proper packing. In those streets in New York, where such produce is mostly handled, one can, in walking a few blocks, see loads of perishable stuff that can only bring the sender in debt for the freight. There are radishes, with their green tops remaining, crowded into tight boxes; spinach and "sprouts," faded and yellow from being sent closely pressed into unventilated barrels, and strawberries, evidently picked in a state of ripeness suited to a near market, and which, on reaching the end of a long journey, are in a "leaky" condition—fit only for the sales of the street venders. These and other examples of badly packed produce are frequently met with. If the losses of this kind for a single week could be ascertained, the aggregate would be surprising. Perishable articles arrive in a worthless condition so frequently, that the leading commission houses have printed circulars to send to their customers, giving directions for the proper state in which the various articles should be gathered, and the best manner of packing. A large share of



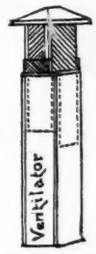
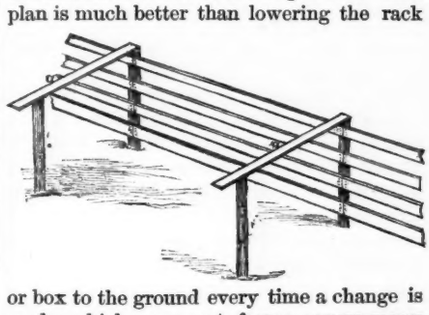


Fig. 7.—THE WINDOW. Fig. 8.—THE VENTILATOR.

the loss is due to lack of sufficient ventilation, and this can be very easily avoided.

A Place for the Hay Rack.

The hay-rigging or rack is usually a cumbersome affair. One person is often obliged to remove or place it upon the wagon; this is easily done by arranging ropes and pulleys over head in the barn basement, or above a drive-way in an out-building. Drive two stakes near a fence, as shown in the engraving, and nail on strips of boards, *a*, *a*. These strips should project beyond the stakes one foot, and be placed as high as the front wheels of the wagon. To remove the rack, drive close up to the platform, and first place the rear of the rack on the platform. In loading, the front end is first placed in position, the loose front bolster allowing the rear part to be readily and easily swung in position. The same is also true of the wagon box. This plan is much better than lowering the rack



or box to the ground every time a change is made, which, on most farms, occurs many times in the course of a year's time. L. D. S.

Our Native Orchids.

There is a very general impression among those who are not familiar with plants, that orchids are "air plants," and cultivated upon billets of wood or pieces of cork. It is true

SNAKE'S-TONGUE ORCHIS (*P. ophioglossoides.*)

that many of the orchids found on the branches of trees in the forests of warm countries grow in this manner, but so do other plants, not orchids, and not closely related to them. Orchids are characterized, not by their manner of growing, but by the peculiar structure of their flowers, in which they differ from all other plants. Without going into details, it may be said that in these flowers the stamens (usually but one or two) are united with the pistil (style) in such a manner as to disguise the two. The flowers are often showy, and their parts very unlike, with one petal, called the *lip*, usually much larger than the others, developed in curious and often beautiful forms. While the most showy orchids belong to tropical countries, plants of the family are by no means restricted to warm climates. We have in our Northern States over fifty species of native orchids. These, as a general thing, are found in damp, shady localities. The well-known "Lady's Slippers" (*Cypripedium*) are the largest flowered of our orchids, but some of the smaller flowers are of exquisite beauty. While these plants are not, as a general thing, very abundant, there are few localities with suitable situations in which some of them may not be found, and they well repay a careful search. Those who have a moist spot in the garden, especially if partly shaded, can, by the use of leaf-mould, make the native orchids feel at home. Having but few fibrous roots, they are not much disturbed by removal; we have collected them when in full flower, and transferred them to the garden, where they continued blooming. The largest genus with us is *Habenaria*, which includes the beautiful species of Fringed Orchis, with spikes of showy purple, and sometimes (though rarely) yellow and white flowers. The genus *Pogonia* has some species with very odd-looking flowers, and one, the Snake's-tongue Orchis (*P. ophioglossoides*), is of delicate beauty. The latter, which is here figured, is less rare than most orchids. It has rose-colored, sweet-scented flowers, which are about an inch long, and usually solitary, though plants are sometimes found with two and three flowers.

Summer Propagation.

The novice in gardening, who likes to try the propagation of plants, "just for the fun of it," will find that many hard-wooded shrubs will strike root if cuttings are set out the present month. He can try one or both of two methods. One is known as the "saucer system"; the other has no name. This last method consists in first making a frame. A box of any convenient size will answer; this being without top or bottom, merely a frame, has one end—top or bottom—covered with common sheeting, tacked on tight, so that it will not sag when rain falls on it. This frame is placed over a sandy spot in the garden. If the garden affords no such place, then fill a shallow box, or boxes, about three inches deep, with pure clean sand, and cover them with the frame. In the "saucer system," a common saucer or soup-plate is used. Clean sand, to the depth of an inch or so is placed in this; the cuttings are stuck in the sand, so closely together that their leaves touch. Then water is added, sufficient to bring the sand to the condition of mud—very wet—and the sand must be constantly kept in this condition, while the whole is exposed to full sunlight. We assume that the amateur merely wishes to amuse himself with the propagation of the various shrubs and vines about his place. He will find that the cuttings of some, taken from very soft wood, will grow, especially if tried in the saucer. Others will take root more readily if allowed to become somewhat hard, but not quite mature. The harder the wood, generally, the longer the time required for taking root. Such cuttings will usually do better in sand under the frame. A great deal of useful experience may be derived from experimenting with cuttings in the manner here suggested.

ONE can, by proper care in selecting and saving the seeds of various garden vegetables and flowers, greatly improve the "strain," as it is called. It is equally true that home-saved seeds, as a rule, tend to deteriorate rather than to improve the quality. The temptation to take the earliest sweet corn, peas, and beans, and the earliest and finest tomatoes and cucumbers for the table, is so great, that it is, as a rule, better to buy seeds than to save them. If one prefers to have his own seeds, let him start as if the production of seeds were the sole object of his garden. Mark the seed-bearing plants; individual plants in the case of corn, tomatoes, cucumbers, and others, and rows, or parts of a row, of peas, etc., and allow the first and best products of these to ripen for seed. If any are taken for use, let it be from the secondary product, not wanted for seed. Select seed from the earliest and best formed fruits, etc. With a certain class of plants, especially of the family to which the melon, squash, etc., belong, excellence on the table is a guide in selecting seed for next year's use, provided, of course, that too many varieties have not been grown near together.

Leaves.—Variety in Size and Shape.

While the leaves of trees are, as a general thing, quite characteristic as to size and shape, circumstances may cause a wide departure from the usual form. Probably most persons, who go about with their eyes open, have noticed that the suckers from a tree that has been felled, often produce leaves many times larger than those ordinarily belonging to the species. This is seen especially in the Basswood, and other trees show more or less of it. The Japanese tree, *Paulownia imperialis*, which was introduced some years ago, and has been considerably planted as an ornamental tree, is remarkable for its freaks in the way of leaves. It is a tree that starts up readily if a root be injured, and this fact is taken advantage of in propagating the tree from root-cuttings. When a Paulownia is cut down, suckers in abundance spring up from the stump. These new shoots, however they may be induced to start, push

TWIG OF PAPER MULBERRY.

with great vigor, more like the stem of a sunflower, than a shoot of a hard-wooded tree. These grow six or eight feet high, and are clothed by enormous leaves, 20 inches or more across, and so much larger than the leaves upon the older branches, that the two would not be supposed to belong to the same tree. This peculiarity of the foliage, and the readiness with which the new shoots start up when the tree is felled, have led to its use to produce foliage effects in ornamental gardening. A Paulownia, cut back yearly, will push up a vigorous stem, with a luxuriant display of foliage that can hardly be produced in any other manner. Of all trees for producing unusual forms of leaves, the Paper Mulberry (*Broussonettia papyrifera*) is the most remarkable. The departure is not so much in size, though this is often considerable, as in the outline of the leaves. The Paper Mulberry was introduced many years ago as a shade tree, and being a rapid grower, was for a while popular. The tree has remarkable vitality, and when cut down, or, as often happens, it being a weak tree, is blown down by storms, new shoots spring up from the old stump. These shoots, as well as those often produced at the base of a standing tree, bear leaves of a wonderful variety of form. Leaves from such shoots are occasionally sent us, to learn the name of the tree. Upon the branches of an old tree the leaves are of regular form, being usually ovate (egg-shaped) in outline. Upon the young shoots, caused to spring up from the base by injury to the tree, and sometimes they appear without apparent cause, the leaves deviate from the usual shape in a most remarkable manner. Sometimes they are three-lobed, and again cut up into many lobes, with no two alike. The engraving of a twig shows leaves of the usual form and others that are lobed, but sometimes stranger forms appear than any that are here given.

Coltsfoot as a Weed.

A list of the most troublesome weeds of our fields and gardens would show that the great majority are of foreign origin. Some come from other countries, but most of our weeds are from Europe, and many of these, under more favorable conditions, take on a development and assume an aggressive character unknown to them at home. Coltsfoot is a plant which is known as a bad weed in Europe, but while it was introduced here many years ago, it has spread but little, and has nowhere, so far as we are aware, become an obstacle to cultivation. On account of its manner of growth, Coltsfoot is a very interesting plant, and appearing in March and April, its bright yellow flowers are among the earliest in spring. Coltsfoot, as the engraving shows, belongs to the great Composite Family. Its heads of flowers are borne singly upon stems six inches or more high; these flower-stems are usually in small clumps; they are pale-green or brownish, and in place of leaves, have numerous narrow scales, and are more or less covered with a loose cottony down. The heads are drooping in the bud, but erect at flowering time, and are from an inch to an inch and a half across. The leaves do not appear until after the flowers have withered; they are six inches or more across, roundish, heart-shaped, the margin with angular lobes. The upper surface is somewhat downy, while the underside is white with an abundant cottony down.

COLTSFOOT. (*Tussilago Farfara*).

The root-stock, or underground stem, is remarkable for its vigor, and the distance to which it runs just below the surface, throwing off branches and spreading in every direction. Each fragment of this will produce a plant, and it is said that if buried deeply by the plow, it will retain its vitality many years, and grow when again brought near the surface. Having a fondness for old-fashioned plants, we some years ago, with some trouble, procured the Coltsfoot and planted it at the base of a rock-work. For a few springs its early flowers were very pleasing, but not finding them one season, we supposed that winter had killed the plant. A few days after our attention was attracted by a bright spot near a fence, and there was our Coltsfoot flourishing as well as ever, some six feet from where we planted it. This habit of spreading, which makes the plant a bad weed in England, also allows it to be useful in binding the soil of railway embankments. The botanical name of Coltsfoot is *Tussilago Farfara*. The generic name is from *Tussis*, a cough, with reference to its medical uses. *Farfarus* was an ancient name of the white poplar, the leaves of which those of the plant somewhat resemble. Coltsfoot is a name given from the shape of the leaf; in some parts of England this plant is called Asses-foot, Bull's-foot, Horse-hoof, etc. The plant has been used from the earliest times as a remedy for coughs, in the form of a tea, and the leaves were smoked for the same purpose. Modern medical men do not find it superior to flax-seed or other mucilageous articles. The cottony down from the lower surface of the leaves, soaked in a solution of saltpetre and dried, has been used as tinder.

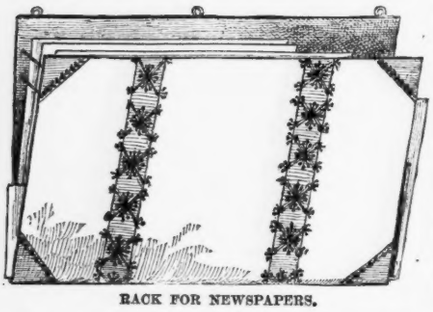
The Cocoa Plum.

Those persons who visit Florida can, if they are interested in such matters, make the acquaintance of a number of wild fruits. Among these is the Cocoa Plum, of which some speak in high praise. The Cocoa Plum is *Chrysobalanus Icaco* (the generic name meaning "golden acorn"); the genus is now placed in a sub-order of the Rose Family, and differs from *Prunus*, the common Plum, in points only of interest to the botanist. It is a shrub from six to twelve feet high, producing white flowers, the arrangement of which, as well as the shape of the leaves, and an outline of the fruit, will be seen in the engraving. It is very common in all of the West India islands, and in Florida it is confined to the southern portion of the State. The fruit, in size and general appearance, is much like a common plum, but is remarkably variable in color, some being white, others yellow, while it is not rare to find specimens with red or purple fruit. The pulp is sweet, and though a little austere at first, most persons become very fond of the fruit. In Jamaica and others of the West Indies, a conserve prepared from the pulp is an important article of domestic trade. The kernel yields an oil on expression. The leaves and roots are astringent and employed as local remedies. We are not aware that any attempts have been made to improve the Cocoa Plum by cultivation. It appears to be a promising subject for some of the intelligent fruit-growers of Florida, to experiment with, and we should be pleased to hear of its development into a standard fruit under proper care. There are doubtless many additions to be made to the orchard and garden products.

THE COCOA PLUM.

Rack for Newspapers.

In a family where a number of papers are taken it is almost a necessity to have some accessible place besides the tables in which to keep them. A rack like the one given in the engraving can be hung beside the table, or on an out-of-the-way bit



RACK FOR NEWSPAPERS.

of wall space, and answers the purpose admirably. It is easily made of heavy card-board. Cut two pieces eighteen inches long and twelve inches wide for the back, and two pieces the same length, and ten inches wide, for the front. The back pieces are covered with gray linen, and sewed bound together. The inner piece of the front is also faced with linen. The outside piece is covered with bronze-green felt, with corners of a darker shade, worked on with feather stitch in black silk floss. The bands are of darker shade, worked with bright colored silks in various hues. The band is fastened on the front with "blind stitch." The long stitches which go across from one edge of the band to the other are of bright yellow brown; the shorter stitches which cross them are of dark red and light blue, and the stitches which extend outwards from the edge of the band are of black and pink silk. The bands are put on before the felt is attached to the paste-board. After the two front pieces are put together, the back and front are sewed together along the bottom, and a cord is attached to the front piece near the top, taken through two holes in the back, and fastened. Three brass rings are very firmly sewed to the upper edge of the back, by which the rack is hung against the wall.

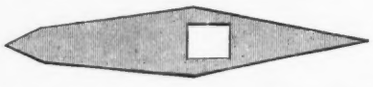
A very pretty rack can be made by using linen throughout, omitting the corner-pieces, and making the bands of velvet, of knot-work, or of canvass, worked with bright wool and silk. The shape may be changed by slightly rounding the upper corners of the front, or both the front and back.

Summer Fancy Work.

During warm weather, ladies enjoy some small "catch-work," that can be easily slipped into a pocket or basket, and carried about on the piazzas or under the trees. For these odd moments, the daisy edging, made of rick-rack braid, still seems to hold its own. It is always useful for trimming all kinds of cotton goods. More elaborate fancy work is also in demand, and many exquisite lots of house-decoration are put together during the summer months. A simple, but exceedingly pretty scarf for a small table, may be made of three strips of broad ribbon, the center strip being of a contrasting color with the two outer ones; thus, cardinal with shaded browns, or purple with old gold. Turn the ends back to make them pointed, and put a tassel or ball on each point. Baste the ribbon on a lining of silk silesia, or colored Canton flannel, and where the edges join, work fancy stitches. If desired, the center strip can be embroidered, or painted with sprays or a trailing vine. Crazy quilts have been the fashion for some little time, and they well deserve their name, being a bewildering combination of silk, satin, and velvet patches of every conceivable hue and shape, joined together with gold floss in feather stitch. The effect is good, if artistically arranged, and these "slumber robes," as some persons call them, may be made very elegant by being bordered with a deep band of dark plush, and lined throughout with quilted crimson satin. We have seen some very pretty scrap-baskets, crocheted of fish-twine, in a long shell stitch, leaving openings between each three rows, two inches wide. The round bottoms are of solid, plain crochet. These baskets are starched very stiff, and while wet, stretched on a pail, where they are allowed to dry, and varnished with shellac, which makes them as firm as wicker-ware, and of somewhat the same color. Bright satin ribbon is run through the openings, and a bunch of artificial flowers fastened on the front. Those who live near or expect to visit the sea during the summer, will find many uses for the graceful sea-weeds thrown up by the waves. The simplest way to mount them is to float them upon panels of card-board. First soak the sea-weed thoroughly in a basin of water. Then have ready a flat dish, also filled with water, into which place the piece to be mounted, and let it spread out. Slip the card-board under it, and raise it quickly out of the dish. Let the water drain off, and with a fine needle arrange the tiny branches. Lay the cards out to dry, and the sea-weed will be found as firmly fastened to the paper, as though glued. A beautiful album can be made of these "flowers of the sea."

A Carpet Rag Looper.

Mr. H. M. Stump, Randolph Co., Ind., sketches and describes a Carpet-rag Looper, from which the engraving, herewith given, is made. The Looper is made out of an old saw blade, and is about 4 inches long, and ¾ inch wide in its widest part. There should be a slot large enough to ad-



mit the ends of the rags. In use, force one end into a block of wood, then push a rag down over the looper, push another rag over on the opposite side, and put the loose end of the first rag through the slot and pull both rags from the looper. Rags may be looped quickly with this instrument.

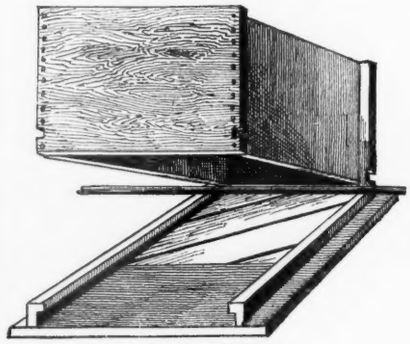
The Care of Ice.

In most localities, ice-houses are now so common that there is usually little difficulty in procuring a supply of ice. Still, in newly settled places, ice is often difficult to obtain, and must be brought from a distance. In the sick-room, especially in some fevers, the life of the patient almost depends upon having ice. Then this usually cheap commodity becomes very precious, and every care must be taken for its preservation. The common method of wrapping a lump of ice in a blanket, answers very well as long as that remains dry, but as soon as the blanket is wet through by the melting of the ice, it becomes a poor protection. The advice, to place the ice upon a feather pillow and cover it with another, may be followed, if nothing better can be done. This affords the proper conditions for the preservation of ice, in completely surrounding it by some non-conductor of heat. It will not require much ingenuity to so prepare a box, with a lining of cotton-batting, felt, or other non-conductor of heat, that it will preserve ice for a long time. If the ice is to be used in small bits, to be placed in the mouth of the patient, use a sharp awl for chipping off pieces of the proper size. If powdered ice is to be applied to the head, etc., first break the ice into pieces as large as a hen's egg, then put these into a canvas bag or a coarse, very strong towel, and by using a wooden mallet, gradually at first, it may be reduced to a fine powder. Rubber bags are made to hold ice in applying it to the head, etc., but in the absence of these, a bladder will answer.

A Cabbage-Cutter.

BY E. E. REXFORD, WIS.

The cutter herewith described was introduced into our neighborhood, by some German families who make a vast deal of sour kraut every autumn. Its



A CABBAGE CUTTER.

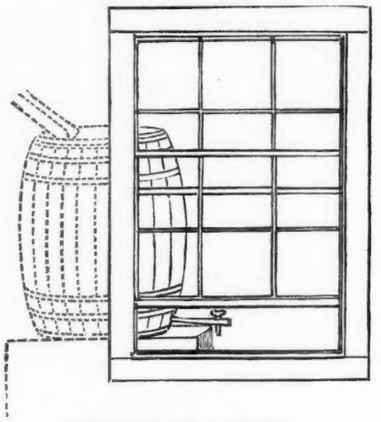
convenience is apparent at a glance; its cost is light, and any carpenter can easily make one. Now-a-days, most cabbage is shaved into strips before being cooked, and this little affair does the work quickly and well. It cuts fine enough for slaw, and can be used to slice potatoes for frying by adjusting the knives to cut the required thickness.

It consists of a board about three feet long and a foot wide. In the center of this board, fitted diagonally across a square opening, are knives, usually made, here, out of old scythes, and set slanting like a plane-iron. To each edge of this bottom board are fitted strips having a flange on the upper part. The end-pieces of the box have notches cut in them to fit these flanges, which make a track for the box to slide on. It is best to make the strips of hard-wood. The box is slipped in on these flanges, and the cabbage, or whatever is to be cut, is put in the box and snugly pressed down. By sliding the box back and forth, and keeping the contents pressed down, each push shaves off a thickness, precisely as a plane takes off shavings from a board. These shavings fall through the openings between the knives, and drop into the pan or tub over which the apparatus is placed.

[Small cutters for the same use, with but a single knife and without the box, are sold at the house-furnishing stores, under the name of "vegetable slicers."—EDS.]

A Summer Substitute for a Cistern.

Many kitchens are without cisterns, and any suggestion regarding a substitute, by which a supply



SUBSTITUTE FOR A CISTERN.

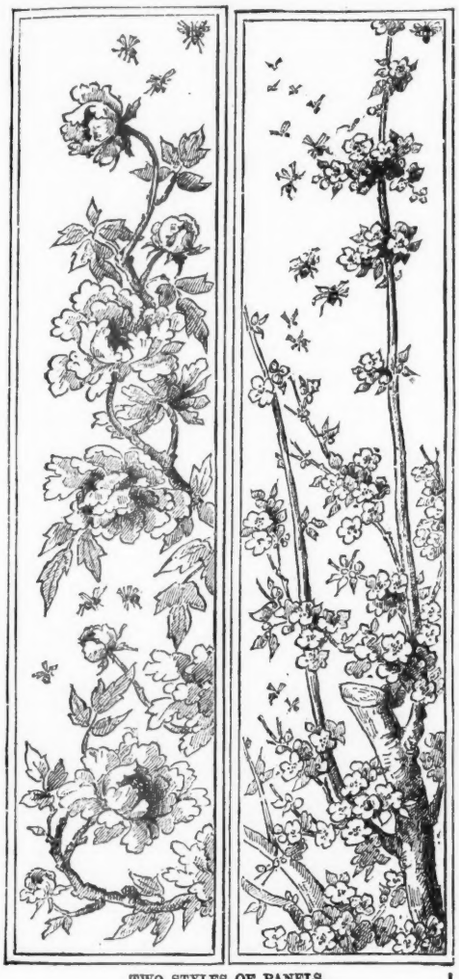
of rain-water can be had, if for only part of the time, will be gladly received by housekeepers. My substitute is an old "rain-barrel." Usually this stands at the corner of the house, and to obtain water from it obliges the women to go out of the

kitchen. Place the barrel near the kitchen window and level with it on a box or other support. Insert a faucet in the lower part of the barrel, so that it can be easily reached from the open kitchen window. Have it so that the pail can be filled while it stands on the window-sill. It would be still more convenient, if the faucet could be inside the house, connecting with the barrel by a piece of gas-pipe.

E. E. R.

Panels for Home Decoration.

The modern style of decorative panels allows those who can not afford costly pictures, to produce a pleasing, cheerful effect in their rooms, at a moderate outlay. The panels are used to break up the bare spaces between windows and in other parts of the room, and the size may be proportioned to the space they are to occupy. The material is usually well-seasoned wood, and for some purposes, heavy bookbinder's board, or very stiff pasteboard, may be employed. These are first painted with two or more coats of some warm gray or other neutral tint, mixed with much turpentine, so that, when dry, they will present a dead surface without any gloss. The decoration of the panel is usually a vine, or a branch, which will allow of the introduction of bright colors for the flowers and pleasing tints of green and brown for the foliage and stems. Bright-colored insects may also be introduced. The engravings, from panels that have been executed, will give hints as to this kind of decoration, which is of course only possible for those who have some skill in the use of the brush. The edges may be finished by neat lines of some dark color. Another method is, to decorate the panels with real objects. A cluster of nicely dried grasses, a group of graceful ferns, or a tasteful arrangement of brilliant autumn leaves, may be made very effective. We have seen pleasing panels, in which birds, made up by gumming real feathers to a card-board form, were introduced, with a branch upon which they were resting, painted in. Lichens, mosses, cones, and other handsome objects may be used to decorate panels with very pleasing results.



TWO STYLES OF PANELS.

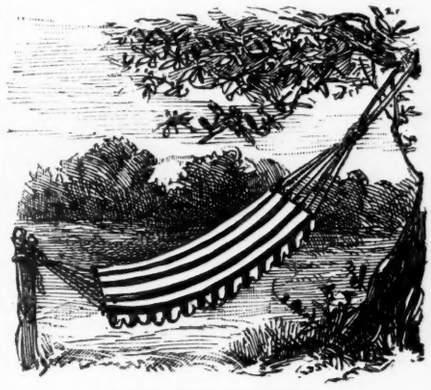
Camping Out.

Those who can afford it, take their summer vacation at the sea-shore or at some mountain resort. The object in selecting a locality, aside from those who are governed by fashion, being to find a place with surroundings as much unlike those at home as possible. But those who most need the summer visit to sea-shore and mountain side, the farmers' and mechanics' hard-worked wives and families, can rarely afford the outlay required. A week at any of these public resorts involves an expenditure that is beyond the means of the majority. After all, the real object of summer vacations is, change—a change of scene, a relief from the daily routine of household duties, a freedom, for the time, from care, and often a marked difference (sometimes for the worse) in the food. Besides these objects, there may be added the meeting with new people, and seeing new ways, which may or may not be desirable. All these results, save the last, can be had without expense, by a week or two in camp. A neighborhood must be poor, indeed, if it does not, somewhere within a few miles, afford a pleasant spot for a camp. It may be by the side of a lake or a river, where fishing can be enjoyed; a hill-side or a mountain top may afford a pleasant place. A desirable spot can usually be found not far from home—indeed, we know of one farmer who does not go beyond the boundaries of his own estate to find a pleasant camping ground. If tents are not at hand, wagon covers, barn-sheets, tarpaulins, or whatever will form a shelter from the dew and rain, may be pressed into the service. The chief point is to provide an abundance of bedding; buffalo robes and comforters, and a plenty of blankets, are usually sufficient, though some may need ticks filled with straw. In starting out for camp, do not take too many things. One of the useful lessons of camp-life is, to show how little one can get along with. The most important part of the outfit is, an abundant supply of good nature; a disposition to make the best of everything, to overcome difficulties, and be always cheerful. A grumbler is an unpleasant companion anywhere, but in camp he is a nuisance. In warm weather, the camp-fire should be at a good distance from the sleeping tents, and precautions taken that no spreading of the fire can occur. It is well to leave nearly all of the crockery at home, and provide a supply of tin plates, tin cups, and cheap knives and forks. Prepare in advance sufficient food to serve for the first two or three days, and then be governed by circumstances.

If the locality furnishes fish or game, the procuring of these will afford sport for the men and boys, but it is not safe to depend upon these, and there should be in reserve a ham, a supply of the standard camp-food, salt pork, which, with an abundance of potatoes, hard-tack, dried apples, and coffee, will keep the table well furnished. Have meals at stated hours, let each one in his or her way help in preparing them, and—what is still more important—help in clearing away and washing dishes. Keep the surroundings of the camp in good order. Have a pit in a convenient place for scraps and slops, and provide other conveniences in a sheltered place at a proper distance. If guns are taken into camp, let it be the business of some one to provide a proper place for them beyond the reach of children, and where no accident can occur. See that the guns are always kept there when not in use. Reduce the work to the smallest possible amount, so that the greater part of the day may be spent in rest—in "leisure," in the best meaning of the term. Be sure and provide an abundance of reading matter. Any hard-worked family will return from a fortnight's vacation, or a longer one, of this kind, better fitted to take up the home routine, and perhaps be more appreciative of home comforts.

Make Your Own Hammock.

A pretty and very comfortable hammock can be made of awning cloth. Two pieces, six feet long and a little over a yard wide, are cut for the body of the hammock; and two strips, five inches wide, to go along the sides. These are scalloped and bound with worsted braid, and the strips basted in place between the two large pieces. The side seams are sewed up on the wrong side. After being turned right side out, the two ends are bound with braid. Eight curtain rings are put on each end,



A HOME-MADE HAMMOCK.

and to each ring is fastened a heavy hammock cord. These cords are all joined to a large iron ring.

To hang the hammock, a light rope is passed through the rings and around two trees or posts. It will be more comfortable, if the head is hung some inches higher than the foot. MRS. BUSYHAND.

A Gourd Scrap-Basket.

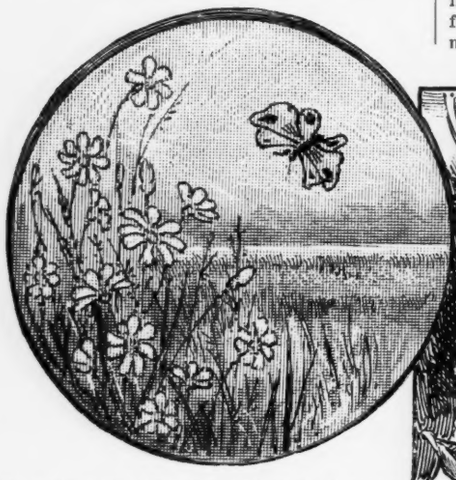
Large sugar-trough gourds can be made into a number of pretty and useful articles, among which is the scrap-basket, shown in the illustration. To make such a basket, select the largest gourd possible, cut off the top, remove the seeds, and scrape and sand-paper the inside surface until it is perfectly smooth. Cut down the smaller piece to the proper size, and glue it to the lower part of the larger one, which forms the basket. The gourds are often a little irregular in shape, and the best decoration for them is a pattern similar to the one given, which is an imitation of the designs on the earthen jars made by the Indians of New Mexico and Arizona. The pattern is put on with common paint and a small brush. It may first be traced with a pencil. Red, black, or dark-brown paint should be used, or the pattern may be done in two colors, black and red, or brown and red. The baskets will be very useful for a variety of purposes, but are particularly intended for setting by the table, to hold papers and magazines, or to receive waste papers and scraps. The gourds can also be made into very pretty work-baskets by providing them with a lining. From the smaller sizes, handsome covers for flower pots can be made, painted in some pretty patterns, ornamented with scrap-book pictures, or in any other tasteful manner.

A GOURD SCRAP BASKET.

The Six-Winged Butterfly.

BY MARY BRANCH.

Such a pretty placque it was, with grasses and daisies grouped together, against the loveliest shaded background, and bending a little as if the wind was blowing them. Some of the daisies faced you, some turned shyly half away, and some were only buds. Lulu Baxter had worked hard on it in the painting class, for she wanted to surprise her father with it on his birthday, and now the daisies were all done. But there was one thing lacking to make it perfect in her eyes. There ought to be a butterfly, with rich velvety wings, flying downward towards the daisies. She glanced towards



Drawn and Engraved for the American Agriculturist.

the clock. "Oh, Miss Thorpe!" she said, "There's half an hour yet. Can't you show me how to make a butterfly?"—Miss Thorpe was tired and had a headache, but she was willing to oblige, and began to look hurriedly through her portfolio of patterns, and after a few moments vain search, she said: "I can't find a butterfly, Lulu, but you may look, and if you find one, trace it off, and I will help you with it when I come round again."—So Lulu hunted through the portfolio herself, but no butterfly could she find, save a huge blue and black one that did not seem suitable for her daisies. At last, as her eyes roamed about the room, she caught sight of a card on the mantel, and yes! there was really a red and brown butterfly on it, just the right size, but his wings were not outspread as she wanted them.

Lulu traced the butterfly, however, managing the wings as well as she could, and taking her tubes, put out some red and brown and yellow paint, to be in readiness. Miss Thorpe then came and with nervous haste began to lay on the colors.—"I will work up one wing to show you how," she said, "and then you can finish it yourself."—"Oh, how beautifully the colors blend!" said Lulu, "and how splendid its spots and stripes are!"—When Miss Thorpe arose, she went to work herself, and soon had her butterfly done, gorgeously sailing down to the daisies. Then she took her placque home with her, for the next day was her father's birthday. She presented it to him with due ceremony after breakfast, and he praised it and kissed her. All the family came around to see Lulu's placque. Her mother was especially pleased with the daisies, and baby Dora called out, "Pitty! Pitty!"—But Johnny, the ten-year-old brother, stared curiously at the placque, and then burst out laughing. "Ho, ho! Who ever saw a butterfly like that!" he exclaimed.—"You don't know anything about butterflies!" said Lulu sharply.—"I know they don't have six wings!" he insisted.—"Some kinds may" said Lulu, "and you are a city boy, you don't know."—But her face colored as she looked at the placque, for she did not feel quite sure about it herself, and her butterfly certainly had six wings.—"At all events he is a superb fellow!" said her father kindly.—But Johnny had once borrowed a book called "Butterfly Hunters," and read it through two or three times. He could not let the matter rest, and the next evening when a gentleman called, who was famous for collections of many sorts, Johnny pointed out the butterfly and asked his opinion.—"I would give ten thousand dollars for a living specimen like that!" the gentleman said, with a twinkle in his eyes.—"Never mind, Lulu," said papa, sorry to see his young daughter mortified, "Miss Thorpe does not claim to give you lessons in Natural History, and when we go out of town this summer, Johnny shall catch you all the butterflies you want for copies."—"All right!" said Johnny."—Johnny really had a great desire to make a collection of butterflies, and to learn all he could about them. So, when a few weeks later, the whole family found themselves in a country town, he was not slow to remind his father of the promise to Lulu.—"I want a butterfly-net the first thing," he said.—His father helped him to manufacture one, by means of an old umbrella stick, a keg hoop, and some blue mosquito netting. It was very pretty when done. Then, remembering the directions he had once read, Johnny procured a box, some pins, and a bottle of ether. Lulu started out with him on his first trip. She took a book with her, and sat under a tree, while he ran hither and thither across the fields, among the daisies, among the clover blossoms, through the bushes, over the rocks and moss and sorrel. Wherever the butterflies fluttered, there Johnny pursued, and again and again the blue net fell over some lovely, delicate captive. With a breath of ether, its life ended, and with its beautiful wings it adorned the box. At last Johnny went back to Lulu.—"Oh! how perfectly lovely!" she exclaimed, dropping her book on the ground, "you have caught as many as forty!"—"There are only three or four kinds," said Johnny.—"I'm going to get out my paints and copy them this very day," she said. "They do have four wings instead of six, don't they, Johnny?"—"Of course they do!" he said decidedly.—After that, butterfly hunting was the pursuit of the season. Their old friend, the collector, was stopping in the same town, and now and then Johnny met him on some country road, hot, sun-burned, and triumphant, with his big box full of specimens. On these occasions they would walk along together, and he gave Johnny a good deal of information about butterflies and moths. But the more Johnny learned, the more he wanted to learn.—"What is the best book, to find out all about butterflies in?" he asked one day.—"There are several popularly written books," his friend told him, "all good in their way. But the one I have learned practically the most from myself is "Insects Injurious to Vegetation."—Johnny was surprised. It did not seem as if those lovely, dainty butterflies could possibly be "insects injurious to vegetation." But a few moments thought showed him that it might be even so. His friend told him, that one year, when the terrible army worms were devastating that part of the country, the son of a farmer in the neighborhood collected some of the worms, allowed them to go into the chrysalis state, and to hatch out again as moths. He then showed them to the farmers, so that they could be on the watch to destroy the moths whenever they saw them, and thus prevent their laying eggs.

"That was being very useful," said Johnny, "but I am a little useful too, for my sister is learning to paint butterflies beautifully now, and I kill so many, that surely there will be fewer eggs to hatch out worms and caterpillars. The farmers will be sorry when I'm gone back to town."—As for Lulu, she declared that her collection, painted on sketching paper, was quite equal to Johnny's arranged on pins, and far easier to take care of.

When the happy summer ended, and they went back to their city home, the first thing Lulu did was to take down the daisy placque from the wall, and paint out the six-winged butterfly, and replaced it with another, so correctly marked, and so delicately worked up, that when Miss Thorpe saw it, she declared she must take lessons of her pupil.

Learning to Swim.

The writer of the article, "Boys, Can You Swim?" in the June number, brought up a very good subject, and, although he mentioned that there are different methods of swimming, he failed to enumerate any of them in detail. Allow me to describe the method which I learned at a school across the Atlantic, and which is practised and taught in the same manner as soldiers learn the manual of arms: Stand straight and erect, hands hanging along the body in natural position, fingers together.

Motions of Hands.—One. Bring the fore-arms in front and center of the body, and raising them as high as possible, and keeping the palms of the hands together. Two. Extend the arms to the front of the body to full length, keeping the palms together. Three. Open the hands, with back upwards and fingers together, and describe a curve

from the front and center of the body to the side with each arm, bringing each to its original position in one exercise, or to "One," in continuous swimming.

Motions of Legs.—One (on land.) Keep the feet together, and let the weight of the body spread the knees as far as convenient. (In water.) Keep the feet together, and draw up the legs, with the knees widely extended. Two. Spread the feet so that, from the knees down, the legs will be straight, and, of course, spread to full extent. (On land.) Jump up and spread the legs. Three. Bring the legs to the original position. No better instructor for this movement in the water can be found than the frog.

Practice on land first with hands, then with feet, and finally with both together, dropping the numbers (One, Two, Three,) when thoroughly familiar with the motions. By fitting a surcingle, webbing, or base-ball belt to the chest of the learner, and attaching this to a rope or strap suspended from a pole, in the hands of a trustworthy person, two or three exercises in the water will give the learner confidence in himself, and he can swim. (Perhaps the Doctor will explain, when he sees fit, the forces employed, and the results obtained.)

"Treading," or "tramping" water is very easily acquired, and is sometimes very welcome—perhaps the means of saving life. Stand in water perpendicularly, swimming only with the hands, to keep yourself up; draw up the feet about six or eight inches, and straighten them out; continue the motion; dispense with the support of one hand, and when you have sufficient confidence, cease to support yourself with either.

It is not difficult, after learning to swim with hands and feet, to swim on the back with legs only, and rest the lungs and arms as much as possible.

B.

How One Insect Made Trouble.

Something happened, not long ago, in one of the large public schools of New York City, which shows how important it is that children should be taught about common things. Among the ignorant, the common dragon-flies are looked upon with dread, not only by children but by older persons. It is a common belief that if one is stung by a dragon-fly, deafness will follow, and children are told that these "Devil's darning-needles," as they are called, will sew up the mouths of the naughty ones. These insects might cause much pain if they only had stings, but they can no more sting than they can sew, and children should not be taught such nonsense about the beautiful and harmless dragon-flies. In one of the city schools there were, in an upper room, over nine hundred children. A dragon-fly flew in at a window and began to sail about over the heads of the youngsters. Many of

A DRAGON FLY.

the children took fright and ran screaming down the stairway into the street, some of them crying "fire!" Boys were in the room below, who, hearing the cry, started for the doors, but were soon checked by the teachers. The cry of fire reached the street, a large crowd at once gathered, the fire engines came, and there was a tremendous excitement—all on account of one little "dragon-fly." Fortunately, the children were quieted before they could crowd and crush one another on the stairs. Had a real panic taken place no doubt many lives would have been lost. Had children been taught that the dragon-flies can neither sting nor injure them in any other manner, they would not have been frightened by the appearance of one in the school-room. The insects do good rather than harm, as they devour great numbers of mosquitoes, and their wings are so beautiful, while their flight is so rapid and noiseless, that they are objects to be admired rather than dreaded.

GATHERING CORK FROM CORK OAK TREES (*Quercus suber*).—*Engraved for the American Agriculturist.*

The Doctor's Talks.

"How is cork made?" writes a young friend in Maryland, who, like some older persons, thinks that cork is a manufactured product. You have no doubt noticed that the bark in different trees and shrubs is very unlike in appearance. In some, the bark is brittle, while in others it is exceedingly tough; so strong, indeed, as to be used instead of rope and cord. The bark of a tree or shrub is not alike all through, but is made up of three different layers, and these layers are so unlike in their nature, that the bark differs in character as one or the other of these is more abundant. The bark of a young twig has (beginning next the wood) 1st, the "Inner Bark" (*Liber*), which is usually very tough, as in the Basswood, the inner bark of which is so useful. Outside of this, in the young twig, is a "Green Layer." This is covered with the "Corky Layer," and outside of all is a very thin skin, which covers the whole. We will say no more at this time about the other parts of the bark of a trunk or branch. It is the corky layer that most interests us. On a young shoot, this only appears late in the season, and it is this which gives the peculiar color to the bark, by which you can often tell a tree from the color of its young branches. In most of our trees, this corky layer does not increase much in thickness, but as the tree gets old, this, with the other outer portions of the bark, decays and falls away. In the Whahoo, or Winged Elm, and in the Sweet Gum, or Bilsted (*Liquidambar*), both trees that are found in Maryland and various other States, especially southward, the corky layer continues to grow for several years. The small branches of both these trees have projecting wings or ridges, which consist of an unusual growth of the corky layer. In these trees this layer grows very irregularly, but in

AN OAK OF SOUTHERN EUROPE

it continues to increase, and form a thick, regular sheet; this is what we know as Cork. The Cork Oak is a fine large tree, with small evergreen leaves, and produces acorns which are eatable, much resembling chestnuts in taste. In this oak, the corky layer, so small in most other trees, forms a coat, one to nearly two inches thick, which, if left to itself, would fall away from the tree in about ten years. For use, the cork is separated about two years before it would naturally fall away. Lengthwise cuts are made through this portion of the bark, and cross cuts above and below them. By means of short levers, the cork is pried off, care being taken not to injure the inner bark. The engraving, showing a company of cork gatherers, explains the manner in which they work. The "Cork Bark," also called "Cork Wood," is stacked up in pits, loaded with heavy stones, and water is let in. After the pieces have soaked for a time, they will keep the flat shape given them by the weights. In some places the surfaces of the cork are charred, but this is not done to the finer kinds.

THE REMOVAL OF THE CORK

does not injure the tree, and it is repeated every six or eight years. Cork differs greatly in quality, the finer kinds, known as "velvet-cork," bringing a much higher price than the common sort. The great use of cork is to make stoppers to bottles and other vessels, and for this purpose no substitute has been found or artificially made. It is

wonderfully elastic, and after it is pressed and placed in the neck of a bottle, it expands, and makes a perfectly tight stopper. Corks were formerly cut by hand, and cork-cutting is still a regular trade in some parts of Europe. A huge knife, much like a butcher's cleaver, is used, and the cork being cut in proper pieces, the cutter forms a stopper by a skillful rolling of a piece against the edge of his large knife. Many corks are at present made by the cork-cutting machine. Besides serving for stoppers, cork is used for floats, soles of shoes, and various other purposes.

The Bird that Takes the Cherries.

Sammie B., of Rhode Island, has, or rather his father has, several cherry trees, and as soon as the fruit is ripe, numerous birds come, regularly every year, and help themselves to the fruit. Master Sammie would like to know the name of the bird, and how to keep it away from the cherries. He describes it in such a manner that we are quite sure that he has reference to the Cedar Bird, also called Cherry Bird and Carolina Waxwing. We give a portrait of the bird, which is about two-thirds of the size of the Robin, but much more slender. At a little distance the bird appears to be mouse-colored, but a closer inspection shows that its general color is reddish olive, lighter on the breast, and the wings are ash-colored. The head bears a large crest, which is raised and lowered at pleasure. The forehead is very black, and this color passes back under the crest, being separated from that by a white line. There are other color markings, but we need notice only the tips of several of the wing-feathers, which appear as if ornamented with red sealing-wax. The tail is tipped with yellow. The engraving will allow our young friends to recognize the bird. It appears at the North very early in spring, remaining for a time in flocks of twenty or more. After a while they pair off, and in June are fairly set up in housekeeping. They build in trees in the orchard, and on the borders of woods. Stems of weeds, grass, small roots and the loose stringy bark of the grape vine, are used in building the nest, which is lined with finer materials. If pieces of twine or thread come in their way, the birds find use for them. The eggs, four or five in number, are usually bluish, with spots of black. One brood appears late in June, and often another in August. It is a very interesting bird, and our young friends will take pleasure in watching its habits.—"But it steals the cherries." There is no denying the fact—it does. The only way to prevent this is, to cover the tree with a net, to keep the birds out, or to plant another cherry-tree, and have fruit enough for the birds. Probably one tree will yield fruit enough to more than supply all the birds in the neighborhood. But what are the birds doing before cherries are ripe, and afterwards? Watch them, and you will see that they catch many insects. The young brood in the nest is fed entirely upon soft caterpillars, and the old birds themselves are very fond of canker-worms and other caterpillars. If they do take a few cherries, recollect that there may have been no cherries at all, did not the birds keep the insects away. Birds, like boys, are rarely all bad. You judge your school-fellows and playmates by both their good and their bad qualities. Why not judge the birds in the same way? Several writers have described these birds as having peculiarly friendly relations. Half a dozen or more will sit close together on a branch; suddenly one will dart off and catch an insect. Instead of eating it himself, he politely passes it to the next bird. Number two, being equally polite, passes it to number three, and the morsel goes from one to another, and the insect is passed back and forth several times, until one is persuaded to swallow it. The engraving shows the bird perched upon a branch of the Bittersweet, not the Climbing Bittersweet or Roxbury Waxwork, but a much more common plant, with soft orange and scarlet berries. These berries, which are said to be poisonous to children, are a favorite food of the Cedar Birds; they are quite abundant in autumn, when the birds frequent the plant.

THE CEDAR BIRD.

A Gigantic Water Bug.

Mr. F. B. sends a sketch of a large bug, and writes us as follows: The other evening, when walking through Union Square, a huge bug fell at my feet. It was so large and unlike anything I had ever seen before, that I fancied it must be some entomological rarity, or at all events very much out of its latitude in New York city. I intended to have preserved it, but it made its escape.

This insect is probably a member of the genus *Belostoma*, which contains several kinds of large water bugs. Its appearance on land is due to the fact, that these insects sometimes leave the pond or stream at night, and take long flights. A gust of wind or a storm may bring them to the ground, to the astonishment of those who find them. These gigantic bugs are well provided with broad fringed hind legs for swimming, and a long sucker, used in securing food. Small fish are frequently killed with this weapon, and boys while bathing have sometimes unfortunately experienced its sharpness.

A Paper House.

Children can get a great deal of fun out of making paper houses. It will teach them how to use the shears, and to exercise their minds in calculating length, etc. Figure 1 shows the form that the paper should be cut into, and also the places for the windows and doors, for a house seen in figure 2. If heavy paper is used, the house is a substantial structure, and may be put up and taken down at pleasure. The size of the "dwelling" may vary according to that of the sheet of paper from which it is cut; but the relations of the various lines must, of course, remain the same.

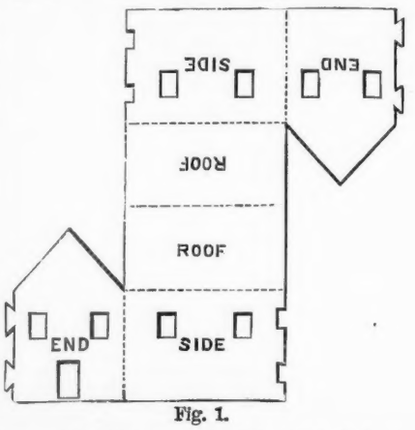


Fig. 1.

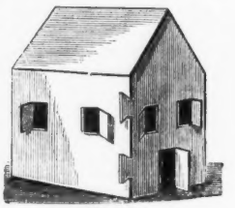


Fig. 2.

Sun-Printing on Apples.

It would take a large volume to contain all the strange freaks of the silent sunbeams. A very neat test of the coloring power of sunlight is made by covering green fruit, such as apples, pears, etc., with tinfoil, cut to form letters or fancy figures. The thin layer of metal that excludes the sun's rays may be fastened on with any adhesive substance. When the fruit is ripe and the cover is taken off, the part of the surface of the fruit that has been exposed will frequently be highly colored, while the other portion is a fine green. The engraving shows an apple upon which some person has caused the sun's rays to print the background of the initials of his name. In marking fruit, it is best to select those sorts that naturally become highly colored when fully ripened.

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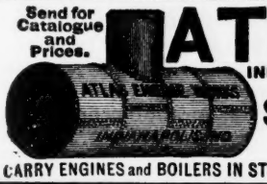

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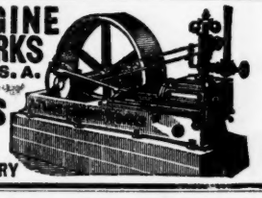

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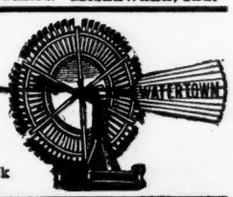

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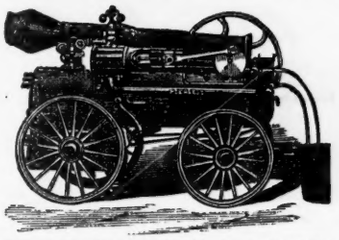

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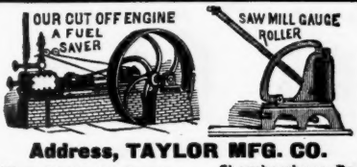

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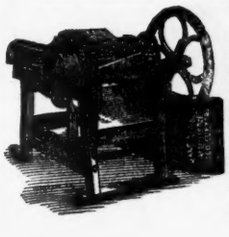

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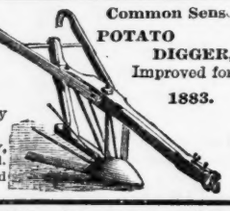

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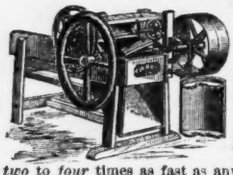

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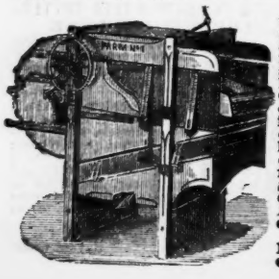
THE "CENTENNIAL" FANNING MILL.



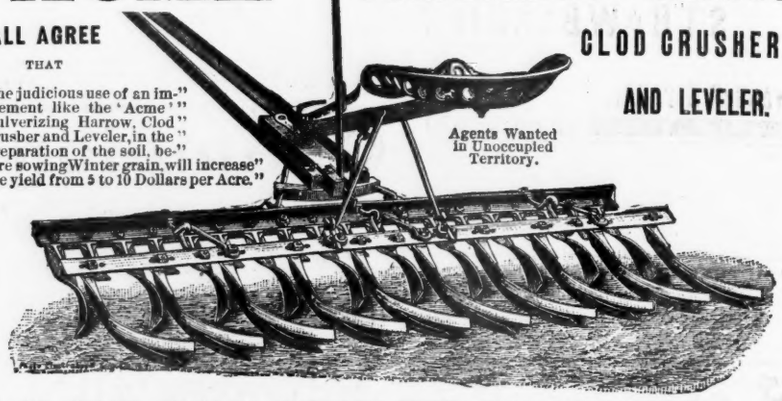
THE BEST MILL IN THE WORLD. It separates Oats, Cockle, and all foul stuff from Wheat. Is also a perfect cleaner of Flax, Timothy, Clover, and all kinds of seeds. The great improvement over other mills is that it has two shoes. It is especially adapted for warehouse use. *Send for Descriptive Circular and Price-List.* Liberal discount to dealers.

Address, S. FREEMAN & SON, Racine, Wis.

"ACME" PULVERIZING HARROW, CLOD CRUSHER AND LEVELER.

ALL AGREE THAT

"The judicious use of an implement like the 'Acme'" "Pulverizing Harrow, Clod" "Crusher and Leveler, in the" "preparation of the soil, before sowing Winter grain, will increase" "the yield from 5 to 10 Dollars per Acre."



Agents Wanted in Unoccupied Territory.

IT IS THE ONLY COMPLETE PULVERIZER, CLOD CRUSHER & LEVELER IN THE WORLD.

FAIR PLAY.

If your dealer does not keep the "ACME" for sale, don't let him palm off an inferior tool on you by assuring you that he has something better, but SATISFY YOURSELF by ordering one ON TRIAL. We will send it on trial, and if it does not suit, you may send it back, we paying return freight charges. We don't ask for money or Note until after you have tried it on your own farm.

SEND FOR PAMPHLET CONTAINING HUNDREDS OF TESTIMONIALS FROM 44 DIFFERENT STATES AND TERRITORIES.

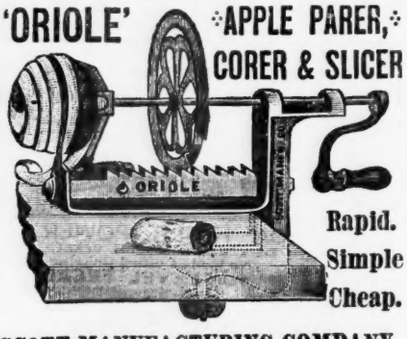
NASH & BROTHER,

Branch Office: **HARRISBURG, PA.**

Manufactory and Principal Office: **MILLINGTON, NEW JERSEY.**

N. B.—Pamphlet entitled "TILLAGE IS MANURE" will also be sent to parties who NAME THIS PAPER.

'ORIOLE' APPLE PARER, CORER & SLICER



Rapid. Simple Cheap.

SCOTT MANUFACTURING COMPANY,

—BALTIMORE, MD.—

FOR SALE BY HARDWARE DEALERS.

Sample by Express upon receipt of $1.00

KEMP'S MANURE SPREADER, PULVERIZER and CART COMBINED.

Greatest Agricultural invention of the age. Saves 90 per cent. of labor, and doubles the value of the manure. Spreads evenly all kinds of manure broadcast or in drill, in one-tenth the time required by hand.

Send for Illustrated Catalogue and full particulars to

KEMP & BURPEE M'F'G CO., Syracuse, Onondago Co., N. Y.

Star Cane Mill.

The only Double Mill made in the West. Twenty different styles and sizes, suited to every capacity, from one-third of an acre to thirty-five acres per day, prices ranging from $35 to $6,000.

Stubbs' Evaporator.

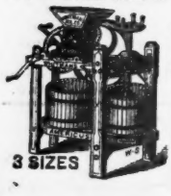
I. A. Hedges, after testing it with others, says it is the Best Evaporator made. It took the only premium awarded for work done at the St. Louis Fair in 1882.

☞ Full stock of **SUGAR MAKERS' SUPPLIES.** Send for Circular to

J. A. FIELD & CO.,

Eighth and Howard Sts., St. Louis, Mo., U. S. A.

Whitman's Patent Americus.



The Best Cider and Wine Mill made. Will make 20 per cent. more cider than any other. Geared outside. Perfectly Adjustable. Prices as low as any first-class Mill. Mfrs. of Horse-Powers, Corn Shellers, Feed Cutters, Feed Mills, etc. Send for circulars.

Whitman Agricultural Co., ST. LOUIS, MO.

Bookwalter Engine.

Especially adapted for Dairies, Creameries, and Farm purposes. Can be used for years without any repairs. Some 3,000 in actual use. Not one ever exploded. Can be run by any one of ordinary intelligence. Every Engine complete, ready to use as soon as received. No Engine built so good and so low in price.

3	Horse-Power....	$240.00
4½	" "	280.00
6½	" "	355.00
8½	" "	440.00

Illustrated Catalogues Free.

JAMES LEFFEL & CO.,

110 Liberty St., New York City, or **Springfield, Ohio.**

The only adjustable Wire Cloth Sieve made. It will take out good seed from the refuse of windmills that cannot be cleaned by any other process. Can be adjusted to many different size and shaped meshes. No. 1 Sieve will separate Plantain, Daisy, Buckhorn, Wild Carrot, &c., from Clover Seed, Red Top and Plantain from Timothy, and Timothy from Clover Seed. No. 2 will separate Rye, Cheat and Cockle from Wheat. No. 3 grades Peas, Beans and Corn. Endorsed by Hiram Sibley & Co., D. M. Ferry & Co., D. Landreth & Sons, Plant Seed Co., Henry A. Dreer, J. M. McCullough's Sons, B. K. Bliss & Sons, J. L. Breck & Sons, U. S. Agricultural Dep't., Washington, D. C.

Prices: Nos. 1 and 2, $2.25; No. 3, $2.50. Express prepaid. Ask your Hardware Dealer for them.

MILTON SIEVE CO., Limited, Milton, Pa.

THE

Farmer's Friend

REX MAGNUS,

The Humiston Food Preservative.

What It Will Do.

It will preserve and keep sweet for any reasonable length of time, in all seasons and climate, meats, poultry, fish, milk, cream, butter, eggs and lard, cider and other vegetable juices, *without any change in their taste or appearance.*

Stubborn Facts.

This is a strong statement but the most searching and thorough tests have proved conclusively that it is a stubborn fact, incredible as in may appear.

35 DAYS TEST.

REX MAGNUS has kept twenty-three kinds of Meats and other Food thirty-five days in a warm room (average 70°) and here is the testimony of the eminent scientific gentleman who had exclusive control of the experiment in his private laboratory, viz: PROF. SAMUEL W. JOHNSON, OF YALE COLLEGE.

The Professor's report, dated March 7, '83, says:

"My tests of 35 days in daily mean temperature of 70°, on meats, &c., bought in open market have certainly been severe and I am satisfied that the different brands of Rex Magnus, The Humiston Food Preservative, with which I have experimented, *have accomplished all claimed for them.* So far as I have yet learned, *they are the only preparations that are effective, and at the same time practicable,* for domestic use. At the banquet on 'treated' meats at the New Haven House *I could not distinguish between those which had been sixteen days in my laboratory and those newly taken from the refrigerator of the hotel.* The oysters were perfectly palatable and fresh to my taste, and better, as it happened, than those served at the same time, which were recently taken from the shell. The roast beef, steak, chicken, turkey, and quail, *were all as good as I have ever eaten.*"

Rex Magnus is *safe, tasteless, pure,* and Prof. Johnson adds in his report, "I should anticipate *no ill results* from its use and consider it *no more harmful than common salt.*"

Thousands of *equally conclusive experiments* in all parts of the country have brought the same good results.

It must not be compared with the worthless deceptions which have preceded it. It succeeds where all others have failed.

By the use of Rex Magnus the Farmer can make sure that his products will remain *fresh and in good condition* until sold, regardless of the weather. This insures him the best price for his merchandise and *no losses* by spoilage or deterioration.

Fresh Meat On The Farm.

Most Farmers are at a distance from town and have found it difficult if not impossible to have the variety of fresh animal food that is not only desirable to the palate, but essential to health. A quarter of beef, a whole mutton or other fresh meat, if treated with Rex Magnus, will keep until it is used up, and will afford a pleasing variety to the usual diet of corned beef, mackerel and salt pork

Simple And Cheap.

The directions for use are so simple that a child can follow them, and its cost amounts to only the fraction of a cent per pound of meat or other food treated, and not over two cents per gallon for milk, cider, wine, or vinegar. *It will save many times its cost.*

Safe, Pure, Tasteless And Harmless.

Rex Magnus never fails. It does its work thoroughly and perfectly. It is compounded from pure and harmless ingredients and contains nothing that will injure the most delicate system. It imparts *no taste whatever* to the articles treated, and it is impossible to detect any difference in flavor between fresh articles and those preserved with it, except in the case of meats, which are improved in flavor and quality by the keeping.

Get It And Try It.

You can do so at a small expense. You do not have to buy a county right nor costly recipe. We sell neither the one nor the other. All grocers, druggists and general stores keep it, or we will send sample pound postpaid (except Aqua Vitae and Anti-Ferment which are put up in bottles) on receipt of price.

Names and Prices.

The various brands and their retail prices are as follows: "Viandine," for preserving meats, poultry, fish and game, 50 cents per lb. "Ocean Wave," for oysters, clams, lobsters, fish, &c., 50 cents per lb. "Pearl," for cream, $1.00 per lb. "Snow Flake," for milk, butter and cheese, 50 cents per lb. "Queen," for eggs, $1.00 per lb. "Aqua-Vitæ," for medical purposes and for keeping fluid extracts, $1.00 per lb. "Anti-Ferment," "Anti-Mold" and "Anti-Fly," 50 cents each.

CREAM.

Our advertisement in the last issue of the "AGRICULTURIST" referred particularly to *Cream* and its preservation by the use of REX MAGNUS. An error of the printer made us say, in our account of the test by Prof. Johnson, of Yale College, that he treated *a pint of water* instead of Cream. The correct description was as follows:

A SOLID TEST.

Prof. Samuel W. Johnson, the noted chemist of the Scientific Department of Yale College, procured cream from a farm 3 miles north of New Haven, Conn. It had been collected and saved from *five milkings* of the three days previous, and was, therefore, *being so mixed*, very difficult to keep.

HOW IT WAS DONE.

A pint of this was treated with "Pearl," a special brand of Rex Magnus, adapted specially for the preservation of cream. After treatment it was placed in a glass jar and sealed, at 3 o'clock of the afternoon of January 31st, 1883, and at 5 P. M. (or 2 hours later) *of the same day, the untreated portion of this cream was found to be sour!*

SEVENTEEN DAYS TEST.

At the banquet held at the New Haven House, 17 days thereafter (long enough to send all over Europe), this jar of treated cream was opened, and the contents were (with the exception of a slight mold on top) found to be *perfectly natural and sweet*, whilst it rendered the *coffee luscious.* The average temperature of the apartment (Prof. Johnson's private laboratory) in which this cream underwent this test, was 70° Fahr.

A Great Want Supplied.

REX MAGNUS supplies the great want felt by dairymen. It will keep the milk fresh and sweet for a week or longer until it is used. It will keep the cream as shown above. It will keep the butter so that it will reach the consumer in just as fine condition as when it leaves the dairy. Hundreds of tons of butter every year become rancid and are sold for grease. This loss all falls on the producer, and it may be avoided by the use of Rex Magnus.

THE HUMISTON FOOD PRESERVING CO.,

72 KILBY ST., BOSTON, MASS.

Feeding Animals:

A Practical Work upon the Laws of Animal Growth, specially applied to the Rearing and Feeding of Horses, Cattle, Dairy Cows, Sheep, and Swine.

By PROF. ELLIOTT W. STEWART.

ILLUSTRATED. PRICE, POST-PAID, $2.00.

Soiling, Summer and Winter,

or Economy in Feeding Farm Stock.

Relating the Experience of the Author, and giving the latest and most economical methods of Summer and Winter Feeding by the System of Soiling. By F. S. PEER.

PRICE, POST-PAID, $1.00.

How to Clean the Piano,

Organs, and all kinds of Cabinet Work,

whether varnished and polished, oil-finished or ebonized. A complete manual of information, by which any person can clean and restore all kinds of wood work. By HENRY EICHORN, a practical polisher of twenty years' experience.

PRICE, POST-PAID, 25 CENTS.

ORANGE JUDD CO., 751 Broadway, New York.

Dissolved.—Mr. G. S. Benson has withdrawn from the well known firm of Benson, Maule & Co., Philadelphia, Pa., and the business is continued by the former partner, Mr. Wm. H. Maule, under the old firm name.

Cows Craving Bones to Chew.—In consequence of a craving for bones, we have often seen it recommended to give cows a small weekly dose of ground bones, to allay the depraved appetite. We have now and then laid a handful of such in the feeding boxes of our cows, and found that they would merely smell at the bone-dust, and then turn their heads away without eating a particle of it. In the same boxes we always keep a good-sized lump of Liverpool rock-salt, which the cows lick at pleasure, we presume. It was in consequence of being thus supplied that they did not crave to hunt up and chew whole bones, or touch them when finely ground and placed within their reach. Coroborating this, we have just seen a communication by a breeder, stating that by supplying his cows daily with salt, he has effectually cured them of all disposition to bone-chewing.

Pear Culture for Profit.—By P. T. Quinn. New Edition. Revised by the Author. New York: Orange Judd Company. Price $1.00. Pear-growers are of two kinds: the amateur or fancier, who cultivates the rarer and newer kinds, and is content if his trees give him a dozen fine specimens each, and the grower for profit, who wishes the greatest number of bushels of the most salable varieties. That pear-growing may be profitable, many are assured. If one, with a view to undertake this new kind of orcharding, consults the standard fruit books, he finds that the varieties of good pears are enumerated by hundreds, and, having had no previous knowledge, he is at a loss which to select. A work like the present is of great value to all who would undertake pear culture as a business. It is by an author who is not afraid to admit that he has made money by pear-growing, and not ashamed to admit his early mistakes, and who is quite willing to give others the benefit of his experience. The success of Mr. Quinn has been due to confining his culture to a few varieties that would pay. The amateur can discuss flavor and other qualities. The pear-grower for profit is concerned in but one quality—will it sell? Some of the choicest varieties known to pomology, if sent to market, would rot before they could be sold. The varieties sent to market must either be known to consumers, or of such an attractive appearance that they will sell on sight. Mr. Quinn's book points out the varieties that he has found profitable, and gives full directions for their cultivation, affording a complete guide to those who would undertake pear culture for profit.

Chorlton's Grape Growers' Guide.—A Hand-book of the Cultivation of the Exotic Grape. By William Chorlton. New Edition. New York: Orange Judd Company. Price 75 cents. When Mr. Chorlton's work first appeared, the culture of native grapes was in its infancy, and but a few pages were given to that department of grape culture. The work was mainly devoted to the growing of exotic grapes under glass. This was given with an anticipation of the wants of the beginner, and with a fullness of detail that warranted the title of "Guide." Since the work first appeared, the culture of hardier grapes has become so extended as to require a literature of its own, and a number of works have appeared devoted solely to the out-door culture of our native varieties. In all this time, no work has appeared in this country upon the culture of exotic grapes under glass—the only method really successful with these—at least east of the Rocky Mountains. When Mr. Chorlton was asked to revise his work, a copy was given him to be marked with his notes. In due time he returned the work, saying, in substance: "This work was originally a record of my daily practice; upon a careful examination, I do not see how my practice at the present time deviates from it in any particular. The only alteration I can suggest is, the addition of the newer varieties of grapes, and that can as well be done by some younger person." The newer varieties have been added, and the work remains, as it long has been, the standard "Guide" for those who would successfully grow grapes under glass. It shows the novice how to begin, and carries him along through every step, explaining each in full.

Schofield and his "Magic Wand."

In June last, we gave, from circulars that had been sent us, some account of a very useless, if not pernicious book, which one Amzi L. Schofield, in Connecticut, was engaged in selling. Amzi is disappointed. While we showed very plainly what a useless, not to say vile, book he was engaged in selling, we did not give his post office address. We do not advertise wares of the kind that Amzi deals in, and the sending of the book will not induce us to give "my full address, so that whoever may wish to know," etc. Amzi, we are not in that line of advertising. You have sent us a copy of the

"MAGIC WAND AND MEDICAL GUIDE."

While the circulars which came to us promise a great deal, the book itself is nothing more or less than a tender to a New York quack medicine shop of the meanest kind. Amzi, we advise you to go into some more respectable business than that of selling such trash as the "Magic Wand and Medical Guide."

About Cheap Organs.

A concern in Massachusetts has for some time been sending out circulars, which, with much circumlocution of certificates and big red seal, set forth the fact that for eleven dollars ($11) and twenty-five names, they will send an organ, in fact, "one of our full-size Parlor Cabinet Organs." We have not given the matter much attention, feeling, perhaps, that one who expected to get an organ of any value for eleven dollars, did not need much sympathy if the instrument should turn out worthless. Even allowing the twenty-five names to be worth a dollar each (a high price, as such things go), what kind of a "Parlor Organ" could one expect for thirty-six dollars? This eleven dollars and "twenty-five names" organ business seemed to be altogether too absurd on the face of it, to require special notice. Letters of inquiry continue to come, and we can only reply, that we have no reason to believe that the parties will not send eleven dollars' worth of organ. Some persons may have a use for an instrument of this value, but we can not conceive what for. Those familiar with the cost of cabinet work, will see at once that eleven dollars will not go very far towards providing a decent case, let alone the working parts of an organ. A friend in Canada writes us that one of his neighbors, a clergyman, procured one of these organs. He says that the case was "daubed here and there with paint," and that the keys were "papered." Yes, but what could you expect of a "cabinet organ" for eleven dollars?

Life Insurance.—"No Medical Examination Required."

We look upon Life Insurance as a most beneficent institution. Its utility is shown not only by the great number of persons of moderate income, who make a provision for their families, but men of wealth, those who are careful in making investments, are known to insure their lives for large amounts. There are several Life Insurance offices, among others the Mutual Life Insurance Co. of N. Y., and the New York Life Ins. Co., as safe as any human institution can be, and who offer those who insure every advantage that long experience, abundant capital, and careful management can afford. Of course, Life Insurance, properly conducted, has been very profitable to all concerned, and this fact has been taken advantage of by speculators to set on foot schemes, which, to say the least, were doubtful. Only a year or two ago, a device to gamble on the insured lives of various aged persons, had attained to such proportions in a neighboring State, that it came to the notice of the courts and was properly suppressed. Now we have the circulars of a concern in Baltimore, of which we know nothing beyond what they state themselves. When a Life Insurance Company in Baltimore, or elsewhere, says in

A CONFIDENTIAL CIRCULAR:

"We offer better inducements to make money than any other Company." Our advice is, to look into the merits of some "other company," that does not make such claims. When a company announces that "No Medical Examination" is required, we should prefer to invest in a company, where a strict examination was required of each applicant. Those who wish to insure, can find that there are companies of the highest character, which do not publish statements like these.

Lotteries and their Ways.

The Lottery, as managed of late, is a most stupendous fraud. Only such prizes are announced as will answer for advertising purposes. That the Legislatures of nearly all States should prohibit lotteries by law, is not so much to be wondered at as that one or two States should still continue to countenance one of the worst of modern swindles. That most beneficent law, which prevents the use of the mails for fraudulent purposes, has saved to the people of this country untold millions, and has been, next to the exposures in these columns, the greatest check upon fraudulent schemes of all kinds. Deprived of the use of the mails, lotteries have been driven out of the country.

LOTTERIES IN CANADA AND EUROPE

are now flooding the country, especially the Western portion, with their circulars. There appears to be a weak place in our generally excellent postal arrangements, which allows swindlers from over the border to use the mails, while home scoundrels are shut out.

THE KENTUCKY LOTTERY CHAPS

are not dead yet. They send out circulars which show that while they may not be in the Lottery business, they still run a "Distribution Company." There is a great display of red and blue ink, and pictures to show how, at their "Magnificent Distribution"—it is not a "lottery," even in Kentucky—one can, by investing two dollars, get a prize of thirty thousand dollars. We are informed that the "chances are greater by forming clubs."

THAT NEW BRUNSWICK AFFAIR

is not so much of a Lottery as it was. This time it is a "Grand Single Number Drawing," also a "Cash Distribution." The terms of "tickets to agents" may be very good for "agents," but how about the poor fellows who are not "agents," and have no place "on the inside track"? Stimpson (with a P) "refers with pride to the entire community." Go it, Stimpson, while you can, but we have no doubt that our Postmaster General will find a way to keep your miserable trash out of the mails. Your circulars and things seem to go largely to the Western States. The farmers thereabouts will stand a share of home nonsense, but when Canadians send their stuff, they don't like it, and the terms in which they express themselves about you and your swindle would afford you, Stimpson, some refreshing, if not consoling, reading.

EUROPEAN SWINDLERS,

and their agents, are not to be tolerated. Mr. D. Mayer, in New York City, we must say to you, as they say down South, "we have no use for you." We don't care how "Royal" your scheme may be, or whatever your "Government" may have to do with it. Every one of the "schemes" you send out, Mayer, is in violation of the laws of the country, which tolerates, but does not want you. Mayer, our Ohio farmers don't need any such literature as you send them. If they are foolish enough to invest in a lottery, it will not be in yours. Mayer, you had better go home. We wonder if D. Mayer has anything to do with

MR. MARTIN MEYER, JR., OF HAMBURG, GERMANY,

for whom we have a word of caution. You had better call on the American Consul at your port, and learn what are the postal laws of the United States. You are flooding some of our Western States with your Lottery Circulars. Every one you send, is in direct violation of the laws of this country. Every answer sent to you can be, and no doubt soon will be, stopped before it reaches the ocean steamer. The laws have so far interfered with the Lottery in this country, that some managers have taken refuge in New Brunswick and other parts of the Dominion. We shall soon find a way to put a stop to these, as well as to your invasions from the other side of the ocean. We do not wonder, that a respectable mechanic in an Ohio city is indignant at receiving one of your circulars, tempting him to join your gambling scheme. If the

"LOTTERY OF THE FREE CITY OF HAMBURG"

was "founded more than a hundred years ago,"—it is time that it stopped—at any rate, we want none of it here, even if your tickets do have "the official coat of arms." By the way, there is not only a great exposure of "arms," but of other parts of the "human form divine" on your superfluous "promissory note." Meyer, we have no use for you; confine your circulars to the other side of the broad ocean.

DECISION IN THE LOUISIANA LOTTERY CASE.

Postmaster General Gresham has handed in his decision regarding the use of the mails by the Louisiana Lottery Co. He upholds the first order, issued by Postmaster General Key, in 1879, commanding the return of all money orders and registered letters to the parties sending them to this company. This decision puts a quietus on the Louisiana Lottery Company for the next three years, as it will take that time to bring the case up on appeal. By official report of the Post Office Department, it has been shown that the stealings in transmissions by the mails have amounted to $100,000 annually.

Medical Matters,

occupy a large share of our correspondence. When we receive such a letter as this from "H. H.," Short Creek, Ohio, we sometimes wonder, if our exposures do any good. "H. H." writes us asking to "caution our readers to send no money to the Rev. Joseph T. Inmann, N. Y. City," and indulges in some remarks not very complimentary to the Rev. Joe. If there is a miserable fraud, that we have shown up from time to time for the last twenty years, it is this same "Rev. Jos. T. Inmann," and requests to show him up, can only come from new readers of the *American Agriculturist*. Still, so long as journals, regarded as respectable, will publish the advertisement of this miserable Inmann fraud, we shall no doubt be obliged to warn our readers against it in years to come. Our correspondent asks us "if we cannot induce publishers to drop this advertisement." We have done all that is possible in exposing, again and again, its fraudulent character. Subscribers to these journals, if they stop taking them, and give their reason for so doing, can exercise an influence that will be felt.

A CONSUMPTION CURE.

A correspondent in Chesterville, Ont., sends us the circulars of a New York quack, and asks us to "inquire if he is a fraud or a regular practitioner." It is not necessary to go beyond the circulars sent out by this man Slocum, to learn that he is a quack of a higher grade than the average. He asks $10 for his stuff, while most others are lower priced. Let them all alone.

THE LITERATURE OF QUACKERY,

affords a study that would be amusing; were it not for the consideration that many are duped by, and suffer on account of it. One who starts a quack medicine, fixes upon some disease of an obscure class; he may call the trouble scrofula, catarrh, consumption, nervous debility, or seminal weakness. Either of these allow enough of general symptoms to be given to make those who read their pamphlets to discover that they are very ill. Nervous or imaginative persons, find their symptoms exactly described, they send for the medicine—usually some simple tonic, and think themselves relieved by taking it. The relief is quite as often as otherwise a mental one. The mere fact, that a nervous, anxious person, has to take a dose at certain stated hours, it may be accompanied with some restrictions as to diet, occupies and amuses him. A large share of the quack medicines of the present day relate to a matter not easily treated of in a journal like ours—and yet it is one we can not ignore. There is nothing concerning which so little is known, and upon which fears are so readily excited, as that of seminal weakness. A large share of the quackery of the day is founded upon this fact, and there is usually some prominent nostrum offered for this trouble. Just now it is

THE MARSTON BOLUS.

A very neat pamphlet is being widely distributed, calling itself a "Scientific Treatise." It is the old story over again. Any partly ill and nervous person can, by reading its pages, find symptoms detailed which meet his case, and he soon comes to the conclusion, which is the whole object of the pamphlet, that his only hope is in using Marston's nostrum. To offset which, we say, Don't. It has been in our way to keep the run of this kind of medical literature for the past forty years. There has been no period during all that time in which there has not been some sure cure for diseases of this kind. Such troubles are largely mental, and the advice of an intelligent physician, with regard to mode of life, would be far more useful than all the medicines of any unknown quack. This Marston pamphlet is a new one, yet it has been, to judge from our correspondence, industriously circulated. It is calculated to alarm the nervous, and to do mischief. Those who, upon reading it, think they are in trouble, do not need the "Company's" boluses or any other stuff; they only need the friendly counsel of an intelligent medical man.

"WONDERFUL MIRACLE CURES."

There was a chap in Brooklyn, not long ago, who pretended to cure by the laying on of hands. But he has a rival in one Dr. Clark, in Massachusetts, who says: "Soul and Body treated together," which shows that he undertakes quite too much for one poor mortal. Here is a large, closely-printed, four-page circular, that is a most surprising production for the present century. Parts of it seem to us blasphemous; it is all remarkably egotistical. For example, he publishes his own portrait, and then prints this saying of some one; "The resemblance between the portrait of Dr. Clark and Abraham Lincoln, which many persons see, is suggestive," We have no patience with this style of quackery.

JUST PUBLISHED.

New and Revised Edition of the

SPORTSMAN'S GAZETTEER

AND

GENERAL GUIDE.

The Game Animals, Birds, and Fishes of North America.—Their Habits, and Various Methods of Capturing.—Valuable Instruction in Shooting, Fishing, Taxidermy, Woodcraft, etc., etc., together with a Glossary and a Directory to the Principal Game Resorts of the country.

This New Edition contains entirely new matter in several departments, a newly engraved portrait of the author, new maps, and many fine illustrations representing Game Birds, Game Dogs, Game Fishes, etc., etc. It is a

COMPLETE MANUAL for SPORTSMEN.

By CHARLES HALLOCK,

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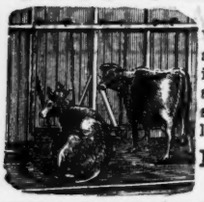

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Editorial Correspondence.

From New York to Chicago.

The routes of travel from New York to the West are now so numerous, that one has a variety from which to select. We came through Pennsylvania, to ascertain the crop prospects, and found them encouraging, except as to corn. Heavy rains and cold weather combined have seriously affected corn, but hopes were entertained that warm days and warm nights in July and August would right things.

Unlimited Oil.—One of the great oil kings told us there were no evidences of oil exhaustion. It is true wells are giving out here and there, but new ones take their places. The Legislature of Pennsylvania, last winter, passed an Act providing for free pipes; that is to say, the right of way is thrown open to all to construct pipes for conducting oil from the oil regions across the State. The company now engaged in this business has pipes laid to New York, Cleveland, and Pittsburg, and the petroleum fluid is forced from the wells through five-inch pipes to these distant points by means of pumps, placed fifty miles apart along the route. These pipes are laid under ground, and policed telegraph lines, with stations every few miles apart, immediately locate the break whenever any occurs. The present company claim that they made no opposition to the Act providing for free pipes, while on the other hand it is charged that they are a vast and dangerous monopoly.

Chicago Redivivus.—For some time after the great conflagration, ten years ago, it used to be commonly observed that New York and Boston owned Chicago, these two cities had advanced such immense sums to the latter for the re-erection of the destroyed blocks. However this may have been, most of these bonds and mortgages have now been paid off. The debt to New York and Boston capitalists has been canceled, and you to-day find many Chicagoians expressing the opinion that the fire, upon the whole, was a good thing, it has led to the erection of such magnificent thoroughfares of magnificent buildings.

Through Illinois.

Fulton, one hundred and thirty-six miles west of Chicago. Small crops look very promising in this section of the State. Owing to the heavy rains, corn was very backward in June. During the last ten days of the month, however, it came forward very rapidly, and now presents a very satisfactory outlook. West of Fulton, the country has been considerably inundated by the heavy rainfalls, and at the beginning of July there was a good deal of ground still under water.

We have now crossed the entire State of Illinois, and so far as our observations extend, all crops are exceedingly promising in the State, with the exception of corn; and if the present hot weather continues, corn, hitherto so backward, will come forward very rapidly.

Through Iowa.

Clinton.—Two miles beyond Fulton, we crossed the Mississippi on a substantial bridge to the thriving city of Clinton, Iowa, whose fifteen thousand population are largely interested in saw mills. Countless numbers of logs are floated down the Mississippi from the timber regions above, and are here, at Clinton, sawed into timber, and distributed through the extensive railroad system to various parts of the West. We are now in Iowa. The ground is rolling, and for some miles along the railroad the crops look very thriving.

Mt. Vernon.—Here, on a beautiful plateau in the centre of a rich agricultural country, is Cornell College, comprising costly edifices, collegiate, scientific, business, and musical courses, embracing over five hundred students, and second only in means and influence to Cornell University, New York. It was Commencement season at Mt. Vernon. The villagers were at their best, and the country lads and lasses from all the surrounding country had flocked in to participate in the Commencement exercises. The number of such educational institutions explain the superior morality and intelligence which prevail through Iowa.

Cedar Rapids.—Here is a city which, as contrasted with Clinton, a place of the same population, is all bustle and activity. The people are out in the streets in full force, and the place strikes you as possessed of a good deal of vim and vigor, with considerable wickedness thrown in. It is a railway and pork centre, and the location of agricultural implement manufactories. Hereabouts crops look well, corn alone being backward.

Through Nebraska.

Omaha.—In our correspondence from this city a year and a half since, we alluded to the wretched condition of the streets, and the almost entire absence of hotel accommodations. Now we find three new first-class hotels, streets paved, and many new and elegant business structures going up. Could George Francis Train come here for a short time from the Madison Square Park, he would hardly recognize the Omaha of old. The city is destined to a great future.

Schuyler, seventy-six miles west of Omaha. This is in the heart of a fine agricultural country. Though the first building was erected only a comparatively short time since, the village now has a population close upon two thousand. All this portion of Eastern Nebraska has suffered from the heavy rains of May and June, which kept corn back. During the last week of June, however, corn has come rapidly forward, and now generally looks promising. There will be a very heavy yield of grass, and small crops generally look well. All the Government and railroad lands in this region have been sold, and the fine farms, stretching out in every direction, now present a most beautiful and picturesque appearance.

Columbus, ninety miles west of Omaha. Here is one of the most flourishing places in Nebraska, where, very many years ago, numerous Mormons settled. They were opposed to the doctrine of a plurality of wives, but adhered to all the other beliefs and tenets of the Mormon Church. They constructed a church edifice, and secured a strong foothold.

Over the Prairies.

Yesterday and the day before we made a wide sweep over the prairie, passing through numerous cultivated farms, where the virgin soil was unbroken the last time we drove over it. From Schuyler to this place, a distance of sixteen miles (looking to the north), the high rolling prairie land is exceedingly picturesque, being dotted as far as the eye can reach with prairie homes, embosomed in groves of box elder and soft maple. When we were here in 1877, the settlers were largely planting cotton-wood. We find, however, that these trees generally have suffered very much from the Cotton-wood Grub, a white worm with a large head, which eats into the heart of the tree and destroys it. North of RICHLAND, eight miles east of here, we found on the farms of John Stibal and others that the cotton-wood trees had been almost wholly destroyed, while the box elders, soft maple, and white ash were in a very flourishing condition. It is well for those emigrating hither from the East to bear this in mind, especially as hitherto the settler has supposed that the next thing for him to do, after breaking some land, was to plant a grove of cotton-wood. While the soft maple and other planted trees are now becoming large enough in Nebraska to afford fire wood, corn-cobs continue to constitute the main article of fuel.

No More Grasshoppers.—The last grasshopper scourge in Nebraska took place in 1876-7. Homesteaders and others were so completely discouraged by the loss of their crops, that many of them sold their lands for anything they would bring. Until 1880, there was a constant fear of the dreaded grasshopper, and the settlers had little heart for farming. Since then, however, grasshopper fears have been entirely dispelled, and a succession of good crops have made the farmers in this part of the State happy, and materially enhanced the value of their lands. Those which, say seven years ago, they bought on time at five, six, and seven dollars and a half per acre, they now hold, with improvements, at fifteen dollars an acre. Here, as further east, in fact all the way from Chicago, corn has been kept backward by the heavy rains and cold weather. It is now, however, coming forward finely.

Raising Tobacco.—Here and there we have found farmers raising tobacco. They report that the crop does well in this region.

Wire Fencing.—This is now being very largely employed in Nebraska, though numerous injuries are reported to horses. Only yesterday a beautiful animal at Welch's Mill, near here, was frightfully torn and lacerated by being entangled in a wire fence which he had attempted to jump. It was the old story. The fence was not sufficiently high. There should have been another strand, and the horse would not have attempted the leap. Make the fences sufficiently high, and the damage to horses will be averted.

Prairie Chickens Scarce.—Sportsmen will be sorry to learn that the heavy rains, overflowing the meadows and uplands as well, have drowned countless broods of prairie chickens, and in Iowa, Kansas, and Nebraska, we are informed that a great scarcity of birds is anticipated this season in many localities.

Northern Nebraska.

Madison, Madison Co., Neb. Here, fifty miles north of the main line of the Union Pacific railroad, we are surprised at finding a land flowing with milk and honey, a population equalling in intelligence that of the older States. For years, during the continuation of the great land boom in this State, the Union Pacific Road paid but little attention to this portion, because it had no lands for sale here, while the Burlington and Missouri River Road in Nebraska directed its energies mainly to the advertising, placing, and sale of its lands in the South Platte. As a consequence, this portion of Nebraska has, so to speak, been unknown to the outside world. One of the most beautiful, fertile, and attractive portions of the State, it has been left to look after itself. But perhaps it has been better for it in the long run, inasmuch as its own inherent advantages quickly made it known, and thereby attracted the very best class of population. A little time ago, the Union Pacific Railroad extended, almost in a night time, as it were, a branch road north here from Columbus, a distance of fifty miles or more, and then the boom began. Now Madison, which was a short time ago almost unbroken, except by the enterprising homesteader, now smiles with growing crops, and Madison Village, which was little more than a saw mill and outbuildings on Union Creek, is now a flourishing county seat, with stores, hotels, banks, churches, Sunday schools, and, what is more, a tone of morality and a degree of intelligence which must prove very attractive to those who have been accustomed to the surroundings and civilization of the older States. Almost everybody here we find have been subscribers or readers of the *American Agriculturist*. We have spent two days in long rides over the prairies of this county, and shall, in the future, give the result of our observations. Suffice it to say now, that this is one of the desirable points for people to come to from the Middle and Western States, who are able to pay from seven to eight dollars and upward per acre for their lands, and wish, instead of beginning at the very start, to find people already upon the ground with whom they can fraternize and affiliate.

Southern Colonies.—It is noteworthy that several colonies of Virginians have located and are preparing to locate in this part of Nebraska. One near Battle Creek is in a flourishing condition. At first thought one would infer that the climate was altogether too cold for Southerners, but the latitude is about the same as that of New York, while the air is very dry and the atmosphere bracing. Such movements of population should be encouraging as tending to hasten the reconciliation era when the North and South shall forget that they were ever engaged in strife, and shall know one another only as brothers.

Middle Nebraska.

Lincoln, Neb.—After four years, we again return to Lincoln, the Capital of Nebraska, to find a most beautiful city, with a marvelous increase in population and improvement. With the State Buildings, a new Capitol, the State University, elegant stores and private residences, and twenty thousand population, this Nebraska railroad centre affords a most striking example of how towns and cities spring up here in the West, in a day. The office of the Journal newspaper, covering almost an entire block, is elegantly fitted up, and would do credit to New York City. It, in fact, is superior to what the New York newspaper offices were, until a few years ago they began to erect such elegant edifices. The B. & M. Railroad Company has likewise erected a depot here of dimensions and architecture, such as are surpassed in but few instances in the older States. Hereabouts land, which was selling six and eight years ago for from six to eight dollars per acres, is now quoted at from sixteen to twenty, and lands which were then held at ten to twelve dollars per acre, are now held at from thirty to forty dollars per acre.

Land Sales.—Mr. J. D. McFarland, the Land Commissioner of the B. & M. Railroad, who resides here, informs us, that the Company have sold about two million acres of its lands, and now have only about three hundred thousand acres remaining, distributed as follows: Fifty thousand acres in Franklin and Webster counties; fifty thousand in Antelope county; one hundred and fifty thousand acres in Greeley, Sherman, Howard, and Valley counties, and the balance scattered in small lots through older counties. These lands are sold for cash or on from two to six years time.

Mr. Howard Kennedy, Assistant Land Commissioner of the Union Pacific Railroad, who accompanied us on a hundred miles tour west of Omaha, informs us that their Company's lands are now, with few exceptions, sold from the

Missouri River west to Fort Kearney, a distance of two hundred miles. One and one-half million acres of agricultural lands, and from four to five millions of acres of grazing lands, belonging to their grant, remain unsold. These lands are held at from three to ten dollars per acre cash and on time.

Ho! for Dakota.

A few years since, in writing for the *American Agriculturist* from the West, we predicted that Dakota would soon become the great objective point of emigration. Such is now the case. Beginning with last year, a most decided boom continues, and this fertile territory is to-day the "Mecca" toward which vast throngs in search of new homes are marching along. We found the Chicago and North-western Railroad Depot in Chicago fairly besieged with people bound for Dakota. Dr. Stennett, the General Passenger Agent of the road, informed us that from March 20th to April 30th, this year, this Company alone sent eighty thousand people to Dakota to live. During April, two hundred car loads of emigrant "movables," that is, household furniture, etc., daily went over the road to Dakota. The owners came from the Middle Western States, Pennsylvania, and New York, largely from the latter State, and embrace a goodly proportion of well-to-do people. Considerable apprehension, however, prevails, lest this very large influx into Dakota may lead to want and suffering, should the coming winter be long and severe; and we found in Northern Nebraska a common expectation that there would be a considerable overflow from Dakota; that is to say, that many emigrants of the poorer classes would stampede south when the weather becomes cold, and funds, food, and fuel scarce. This, however, can be averted by the exercise of proper care and forethought by those directly interested. At the same time, those who now contemplate going to Dakota, should bring sufficient funds along with them, or delay coming until they have funds; otherwise they may become a burden, both to themselves and the new country. The general sentiment is, that the territory should be and will be divided into two States, both of which will have sufficient population to be entitled to admittance into the Union as States when Congress again assembles. In another letter we shall speak very fully of Dakota, designating the more desirable localities in the territory, giving the best modes of reaching them, and such other information as may be derived from an extended tour through this magnificent territory. D. W. J.

Wheat—Corn—Oats—Pork—Lard.

Great Excitement and Changes in Prices.

The tornadoes that swept so disastrously over many parts of the country during a month past, have been paralleled in the great central breadstuff and provision markets of Chicago. The aggregate money losses by the former, are probably far exceeded by the depreciation of the "assets" of a small number of persons operating in the Chicago grain and provision exchanges. WHEAT was selling in Chicago the first of the year at $1.00 per bushel, and lower still last autumn. It was quoted at $1.10 on February 1st, at $1.14 on March 6th; and in two months (May 7th to July 7th) it varied all the way from $1.14 to 98 cents per bushel, a difference of 16 per cent, and the closing rates are but little above the lowest figures. There were still more marked changes in PORK and LARD figures, especially lard, which in January sold for 10¼ cents per lb., was carried up in May to 12⅛ cents for July delivery, and on July 3d was only a little over 9 cents, a difference between May 7th and July 3d of 33 per cent on the latter quotations. Pork also varied $4.73 per barrel between May 7th and July 3d, for July delivery—a difference of over 30 per cent from the latter date. CORN, though running at more uniform rates most of the time, was quoted at 48 cents on July 3d, and at 62 cts. on March 6th, a difference of nearly 30 per cent. OATS for September delivery fell 13 cents per bushel from June 7th to July 3d—a difference of nearly 50 per cent.

Causes of the Variation and Decline.

These have been three-fold. First, the higher rates were not legitimate—were not made or governed by the relative supply and demand, in this country and Europe—but by the schemes of a few leading cliques, who drew with them a considerable following of outside parties, led by them like lambs to the slaughter. "Put not your faith in princes,"—in the magnates of the stock, the provision, the grain, or any other speculative markets—is a lesson learned at serious cost by a great many people. In the Chicago markets, the leading operators undertook to buy up all the available supplies of Lard, of Pork, of Wheat, and of Corn, and then make their own prices. To do this, they had to take or put up "margins" on all that was offered at figures under those they had "pegged." They, of course, expected that the dear public would have so much faith in their names, power, and ability, that the people would help carry their loads. In this they were, in part, mistaken, thanks to the warnings to the public by a faithful press that could not be purchased.

On June 16th the first blast of the hurricane struck in Chicago. McGeogh, Everingham & Co., were loaded up with untold millions of lard, which they were carrying at 11¼ and 12 cents per lb. They had refused to accept a large amount of a leading brand of this article on a contract, claiming that it was "adulterated," and thus threw discredit both at home and in Europe on one of the leading and purest articles of export. Of course nobody, not even the simplest "Lambs," wanted lard when no one knew how large a per centage of all the lard in the market was "adulterated." This was the "last straw," and down went the McGeogh firm, and others followed.

The second cause of the decline has been the larger stocks than were looked for, of "reserves," coming out from the producers who had been holding corn, wheat, and hogs, partly for hoped-for higher prices, and partly because too busy with spring work to market the surplus.

The third and a prominent cause of lower prices, is the improved and the improving condition of the growing crops in many parts of this country, and to some extent in other parts of the world.

NEW YORK PRICES, though usually in close sympathy with, and following Chicago rates up and down, allowing for freightage and the expenses of transferring, have not changed as much as at Chicago, from day to-day.

The Great Failure Beneficial.

Multitudes of farmers, who were keeping wheat, corn, and hogs for higher prices, were greatly troubled on June 16th, when the news was telegraphed throughout the country that the great dealers in Chicago, McGeogh, Everingham & Co., had failed for many millions of dollars. Lard suddenly dropped from $11.50 per 100 lbs. to $9.05, or more than 21 per cent; other hog products, pork, bacon, etc., declined largely, and wheat and corn rapidly fell. A few farmers have been temporarily benefited by the bold operations of speculators, that is, those who have sold their products while the speculators' prices were maintained. But the future good of farmers generally, and of the country, has been promoted by this collapse. The consumption in Europe, the chief buyer of our surplus breadstuffs and provisions, is largely increased by moderate prices. The last crop of wheat was so large in nearly all the world, Spain excepted, that there would be very little wheat called for from this country, except at medium rates. If the speculators had succeeded in keeping prices above the export figures, we should have had a large surplus of last year's crop left over, to be added to the crop of 1883. In this case, unless the now ripening wheat and the growing corn should meet with some disaster, the supply would be so large that there would be danger of prices sinking below the cost of production even. The utter failure of every speculative dealer in the great grain and produce markets would be a real blessing to the whole country, farmers as well as every other class.

Grain in Sight.

The "visible supply" of Wheat, Corn, and Oats, that is, the amounts out of the hands of the producers, and stored in the markets, or in transit, continues very large. For the Atlantic ports of the United States and Canada, there are over twenty millions bushels of such wheat, above fifteen millions bushels of corn, and four and a half millions bushels of oats, or a total of above forty millions bushels of these three grains, besides rye, barley, etc.

The Outlook.

There is considerable variation in the reports in regard to the condition of the growing crops and their prospects. On the whole, however, the general prospect is favorable. There has been a good deal of improvement in many places, from which the reports ran quite discouraging during the spring months. Spring Wheat is doing well almost everywhere, with a good acreage. Winter Wheat is also improving in very many places. These crops have yet to run the gauntlet of insects and damaging storms in the leading northern wheat regions. Corn is coming on fairly, generally. Now that the worst speculators have been crippled, and the markets left more to their natural course, exports are likely to increase, and there will be more room and a better demand for this year's products when they are ready. If the present maturing crops meet with no serious disaster, and late frosts allow the maturing of the growing corn, the year's products will be ample for all home wants, with a good surplus for export. Fair but not high prices will, in this case, be realized by producers, and abundant food for all classes will be obtainable at reasonable figures.

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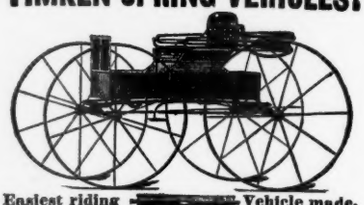

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